MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

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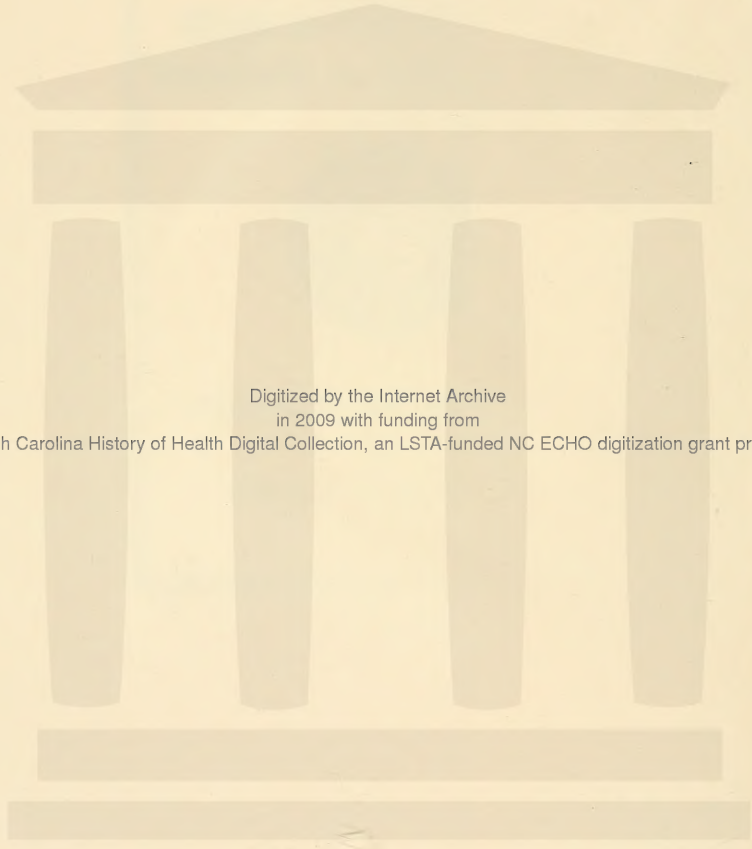

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Engd by E. A. Wright, Phila.

J. F. Highsmith

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

FIFTY-SIXTH ANNUAL MEETING

HELD AT

ASHEVILLE, N. C.

JUNE 15, 16 AND 17, 1909

PRESIDENT, DR. J. F. HIGHSMITH, FAYETTEVILLE, N. C.
SECRETARY, DR. DAVID A. STANTON, HIGH POINT, N. C.

RALEIGH
EDWARDS & BROUGHTON PRINTING COMPANY
1909

Publication Committee.

Dr. D. A. Stanton ..... High Point.
Dr. H. A. Royster ..... Raleigh.
Dr. R. L. Gibbon ..... Charlotte.

"It is to be understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the transactions of the Society."—*Extract from By-Laws, chap. 10, sec. 8.*

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ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1909.

* Missing Data not to be Found in Records.

	Date.	Place.	Members in Attendance.	President.	Vice-Presidents.	Secretary.	Treasurer.	Members on Roll. *	Honorary Members. *	Honorary Fellows. *
	1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	Edmund Strudwick	F. J. Haywood, C. E. Johnson, J. E. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	Edmund Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	9	
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	Wm. G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	37	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	35	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	
13	1866	Raleigh	20	J. J. Summerell		W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham	228	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George E. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	36	E. Burke Haywood	Thos. E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Lucky, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones			

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA—Continued.

* Missing Data not to be Found in Records.

	Date.	Place	Members in Attendance.	Presidents.	Vice-Presidents.	Secretary.	Treasurer.	Members on Roll. *	Honorary Members. *	Honorary Fellows. *
18	1871	Raleigh	35	Hugh Kelly.	D. N. Patterson, R. C. Pearson, J. B. Seaby, G. L. Kirby.	Thomas F. Wood	J. W. Jones			
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones			
20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Chas. Duffy, T. P. Jerman.	James McKee	H. T. Bahnson			
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson	126	5	
22	1875	Wilson	60	J. W. Jones	Walter Debnam, J. A. Gibson, Wm. Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	
23	1876	Fayetteville	33	Peter E. Hines	Jos. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot	A. G. Carr	194	6	
26	1879	Greensboro	109	Charles Duffy, Jr	J. A. Gibson, Willis Alston, Jas. McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	
28	1881	Asheville	92	R. B. Haywood.	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	
29	1882	Concord	65	Thomas F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr	424	6	
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr	438	7	

34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr	452	7	
35	1888	Fayetteville	133	T. D. Haigh	W. P. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker	C. M. Poole	306	6	
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long.	J. M. Baker	C. M. Poole	410	6	
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. W. Booth.	J. M. Hays	C. M. Poole	414	6	
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays	C. M. Poole	422	6	
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Poole	431	6	
40	1893	Raleigh	221	J. W. McNeill	W. G. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3
41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodge, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro		J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Monroe, J. A. Burroughs J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte		Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	George W. Pressly	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Poole, James M. Parrott, T. B. Williams, W. D. Hilliard.	George W. Pressly	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	George W. Pressly	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	Geroge W Pressly	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1033	8	17
52	1905	Greensboro	361	David T. Taylor	C. A. Julian, John T. Burrus, I. W. Faison.	J. Howell Way	G. T. Sikes	1175	8	17
53	1906	Charlotte	406	Edward C. Register	L. B. McBrayer, W. H. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLoughlin, W. F. Hargrave.	David A. Stanton	H. McKee Tucker	888	7	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, Nixon Edwards.	David A. Stanton	H. McKee Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Poole, D. A. Garrison, D. O. Dees	David A. Stanton	H. McKee Tucker	1067	7	25

PAST MEMBERS BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

*JAMES H. DICKSON, Wilmington.....1859–1866
*Charles E. Johnson, Raleigh.....1859–1866
*Caleb Winslow, Hertford.....1859–1866
*Otis F. Manson, Townsville.....1859–1866
*William H. McKee, Raleigh.....1859–1866
*Christopher Happoldt, Morganton.....1859–1866
*J. Graham Tull, New Bern.....1859–1866
*Samuel T. Iredell, Secretary.....1859–1866
*N. J. PITTMAN, Tarboro.....1866–1872
*E. Burke Haywood, Raleigh.....1866–1872
*R. H. Winborne, Edenton.....1866–1872
*S. S. Satchwell, Rocky Mount.....1866–1872
*J. J. Summerell, Salisbury.....1866–1872
*R. B. Haywood, Raleigh.....1866–1872
*M. Whitehead, Salisbury.....1866–1868
J. F. Shaffner, Salem.....1868–1872
*William Little, Secretary.....1866–1872
*CHARLES J. O'HAGAN, Greenville.....1872–1879
*W. A. B. Norcom, Edenton.....1872–1878
*C. Tate Murphy.....1872–1878
*George A. Foote, Warrenton.....1872–1878
*J. W. Jones, Tarboro.....1872–1878
*R. L. Payne, Lexington.....1872–1878
Charles Duffy, Jr., New Bern.....1872–1878
*P. E. HINES, Raleigh.....1878–1884
*T. D. Haigh, Fayetteville.....1878–1884
*R. I. Hicks, Williamsboro.....1878–1880
*George L. Kirby, Goldsboro.....1878–1884
*Thomas F. Wood, Wilmington.....1878–1884
*Joseph Graham, Charlotte.....1878–1884
H. T. Bahnson, Salem.....1878–1894
R. H. Lewis, Raleigh.....1880–1884
*WILLIAM R. WOOD, Scotland Neck.....1884–1890
A. W. Knox, Raleigh.....1884–1890
Francis Duffy, New Bern.....1884–1890
*P. L. Murphy, Morganton.....1884–1890
Willis Alston, Littleton.....1884–1890
W. J. H. Bellamy, Wilmington.....1884–1890
J. A. Reagan, Weaverville.....1884–1890
R. L. Payne, Jr., Norfolk, Va.....1890–1892
George W. Purefoy, Asheville.....1890–1892
George G. Thomas, Wilmington.....1890 1894
Robert S. Young, Concord.....1890–1894
George W. Long, Graham.....1890–1896
W. H. WHITEHEAD, Rocky Mount.....1890–1896
L. J. Picot, Littleton.....1890–1896
JULIAN M. BAKER, Tarboro.....1892–1898
H. B. Weaver, Asheville.....1892–1898
†T. S. Burbank, Wilmington.....1894–1898
*J. M. Hays, Greensboro.....1894–1897
D. T. TAYLOE, Washington.....1896–1902
†R. H. Whitehead, Chapel Hill.....1896–1897
Thomas E. Anderson, Statesville.....1896–1900
Kemp P. Battle, Raleigh.....1897–1902
J. Howell Way, Waynesville.....1897–1900
W. H. H. Cobb, Goldsboro.....1898–1902
Albert Anderson, Raleigh.....1898–1902
E. C. REGISTER, Charlotte.....1898–1902
Thomas S. McMullan, Hertford.....1900–1902
John C. Walton, Richmond, Va.....1900–1902
†George W. Pressly, Charlotte.....1902–1906
A. A. KENT, Lenoir.....1902–1908
G. T. Sikes, Grissom, (Secy.).....1906–1908
CHARLES O'HAGAN LAUGHINGHOUSE, Greenville.....1902–1908
M. H. FLETCHER, Asheville.....1902–1902
James M. Parrott, Kinston.....1902–1908
J. T. J. Battle, Greensboro.....1902–1908
Frank H. Russell, Wilmington.....1902–1908

*Dead. †Resigned.
Note.- The names of those who served as President appear above in CAPS while those of the various Secretaries appear in SMALL CAPITALS.

BOARD OF MEDICAL EXAMINERS, 1908–1914.

John C. Rodman, President, Washington, Chemistry and Pediatrics.
Benj. K. Hays, Secretary, Oxford, Materia Medica.
Lewis B. McBrayer, Asheville, Surgery.
Wm. W. McKenzie, Salisbury, Anatomy and Histology.
Henry H. Dodson, Greensboro, Practice of Medicine.
John Bynum, Winston-Salem, Obstetrics and Gynecology.
J. L. Nicholson, Richlands, Physiology and Hygiene.

NEXT ANNUAL SESSION AT WRIGHTSVILLE BEACH, JUNE 21, 1910.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH, FROM ORGANIZATION IN 1877 TO 1908.

Name.	Address.	Appointed by	Term.
S. S. Satchwell, M. D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M. D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M. D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M. D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M. D.	Raleigh	State Society	1877 to 1878
George A. Foote, M. D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M. D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M. D., Secretary	Wilmington	State Society	1878 to 1884
Chas. J. O'Hagan, M. D., President	Greenville	State Society	1878 to 1882
George A. Foote, M. D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M. D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M. D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M. D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M. D.	Lexington	State Society	1881 to 1887
Marcellus Whitehead, M. D., Pres.	Salisbury	State Society	1881 to 1884
J. M. Lyle, M. D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M. D., President	Wake Forest	State Society	1883 to 1889
John McDonald, M. D.	Washington	State Society	1883 to 1889
S. H. Lyle, M. D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M. D.	Raleigh	State Board	1884 to 1893
Thomas F. Wood, M. D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hilliard, M. D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M. D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M. D., Secretary	Raleigh	State Society	1887 to 1897
H T. Bahnson, M. D., President	Winston-Salem	State Society	1887 to 1893
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1888
W. G. Simmons, Chemist	Wake Forest	Gov .A. M. Scales	1887 to 1889
J. H. Tucker, M. D.	Henderson	Gov. A. M. Scales	1887 to 1889
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M. D.	Henderson	Gov. D. G. Fowle	1889 to 1891
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1893
J. A. Hodges, M. D.	Fayetteville	State Society	1889 to 1892
J. M. Baker, M. D.	Tarboro	State Society	1889 to 1893
J. H. Tucker, M. D.	Henderson	Gov. Thomas M. Holt	1891 to 1893
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. Thomas M. Holt	1891 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. Thomas M. Holt	1891 to 1892
*Thomas F. Wood, M. D., Secretary	Wilmington	State Society	1891 to 1897
George G. Thomas, M. D., President	Wilmington	State Board Health	1892 to 1897
S. Westray Battle, M. D.	Asheville	State Society	1891 to 1895
W. H. Harrell, M. D.	Williamston	State Society	1892 to 1895
John Whitehead, M. D.	Salisbury	State Board Health	1893 to 1895
W. H. G. Lucas, M. D.	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M. D. Secretary	Raleigh	Gov. Elias Carr	1893 to 1895
W. P. Beall, M. D.	Greensboro	Gov. Elias Carr	1894 to 1897
John Whitehead, M. D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M. D.	Williamson	State Society	1895 to 1897
W. P. Beall, M. D.	Greensboro	Gov. Elias Carr	1895 to 1897
W. J. Lumsden, M. D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M. D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. Elias Carr	1895 to 1897
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1895 to 1897
C. J. O'Hagan, M. D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M. D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M. D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M. D., Secretary	Raleigh	Gov. D. L. Russell	1897 to 1899
A. W. Shaffer, Sanitary Engineer	Raleigh	Gov. D. L. Russell	1897 to 1899
Charles J. O'Hagan, M. D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M. D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M. D.	Wilson	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M. D. Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M. D. President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M. D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M. D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M. D.	Milton	State Society	1899 to 1901
R. H. Lewis, M. D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M. D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M. D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M. D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1903
S. Westray Battle, M. D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M. D.	Northampton	State Society	1901 to 1907
W. H. Whitehead, M. D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M. D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M. D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. C. Spencer, M. D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M. D., Pres.	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M. D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M. D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M. D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T Tayloe, M. D.	Washington	State Society	1907 to 1913
James A Burroughs, M. D.	Asheville	State Society	1907 to 1913

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

Officers and Committees, 1909.

President—Dr. J. F. Highsmith.....Fayetteville.
First Vice-President—Dr. C. M. Poole .....Salisbury, R. F. D.
Second Vice-President—Dr. D. A. Garrison .....Bessemer City.
Third Vice-President—Dr. D. A. Dees ..... Bayboro.
Secretary—Dr. D. A. Stanton (Term expires 1912)..... High Point.
Treasurer—Dr. H. McKee Tucker (Term expires 1909)..... Raleigh.
Essayist—Dr. Wm. LeRoy Dunn .....Asheville.
Leader of Debate—Dr. Leon B. Newell .....Charlotte.
Orator—Dr. Chas. W. Moseley.....Greensboro.

Councilors.

(Term expires 1910.)

First District—Dr. Oscar McMullan, Elizabeth City.
Second District—Dr. R. A. Whitaker, Kinston.
Third District—Dr. Frank H. Russell, Wilmington.
Fourth District—Dr. E. T. Dickinson, Wilson.
Fifth District—Dr. J. F. Highsmith, Fayetteville.
Sixth District—Dr. Hubert A. Royster, Raleigh.
Seventh District—Dr. Chas. M. Strong, Charlotte.
Eighth District—Dr. J. B. Smith, Pilot Mountain.
Ninth District—Dr. Isaac M. Taylor, Morganton.
Tenth District—Dr. James A. Burroughs, Asheville.

Members House of Delegates American Medical Association—Dr. J. Howell Way, Waynesville; Alternate, Dr. P. J. Thomas, Wilmington (1908–1910); Dr. A. J. Crowell, Charlotte; Alternate, Dr. D. S. George, Bayboro, (1908–1910); Dr. D. A. Stanton, High Point; Alternate, Dr. H. H. Dodson, Greensboro, (1908–1909).

Committee on Public Policy and Legislation—Dr. J. F. Highsmith, Fayetteville; *ex officio;* Dr. R. H. Lewis, Raleigh; Dr. Geo. G. Thomas, Wilmington; Dr. Albert Anderson, Raleigh; Dr. D. A. Stanton, High Point, *ex officio.*

Committee on Publication—Dr. E. C. Register, Charlotte; Dr. W. H. Wakefield, Charlotte; Dr. D. A. Stanton, High Point, *ex officio.*

Committee on Scientific Work—Dr. Watson S. Rankin, Wake Forest; Dr. John Bynum, Winston; Dr. D. A. Stanton, High Point, *ex officio.*

Committee on Finance—Dr. H. S. Lott, Winston-Salem; Dr. J. M. Blair, Monroe; Dr. R. E. L. Flippen, Pilot Mountain.

Committee on Obituaries—Dr. Chas. A. Julian, Thomasville; Dr. A. A. Kent, Lenoir; Dr. S. T. Nicholson, Washington.

Committee on Arrangements Asheville Session, 1909, Local Member of—Dr Thos. E. W. Brown, Asheville.

The fifty-seventh annual session of the Medical Society of the State of North Carolina will convene at Wrightsville Beach, N. C., June 21, 1910. The hearty cooperation and attendance of all members of the component County Medical Societies of the State is desired to make the occasion the most complete success possible.

Officers and Committees, 1910.

Nominating Committee met and organized with Dr. A. A. Kent, President, Dr. B. L. Long, Secretary, and the following gentlemen were nominated as officers of the Medical Society of North Carolina:

President—Dr. J. A. Burroughs.....Asheville.
First Vice-President—Dr. E. J. Wood.....Wilmington
Second Vice-President—Dr. Jno. Q. Myers.....North Wilkesboro.
Third Vice-President—Dr. L. D. Wharton.....Smithfield.
Secretary—Dr. D. A. Stanton.....High Point.
Orator—Dr. Cyrus Thompson.....Jacksonville.
Essayist—Dr. R. V. Brawley.....Salisbury.
Leader of Debate—Dr. D. A. Garrison.....Gastonia.
Treasurer—Dr. H. D. Walker.....Elizabeth City.

Councilors.

First District—Dr. Oscar McMullan, Elizabeth City.
Second District—Dr. R. A. Whitaker, Kinston.
Third District—Dr. Frank H. Russell, Wilmington.
Fourth District—Dr. E. T. Dickinson, Wilson.
Fifth District—Dr. J. F. Highsmith, Fayetteville.
Sixth District—Dr. Hubert A. Royster, Raleigh.
Seventh District—Dr. Chas. M. Strong, Charlotte.
Eighth District—Dr. J. B. Smith, Pilot Mountain.
Ninth District—Dr. Isaac M. Taylor, Morganton.
Tenth District—Dr. James A. Burroughs, Asheville.

Committee on Public Policy and Legislation—Dr. R. H. Lewis, Raleigh; Dr. Albert Anderson, Raleigh; Dr. Geo. G. Thomas, Wilmington.

Committee on Publication—Secretary, *ex officio*; Dr. H. A. Royster, Raleigh; Dr. R. L. Gibbon, Charlotte.

Committee on Scientific Work—Secretary *ex officio*; Dr. T. S. McMullan, Hertford; Dr. Harlee Bellamy, Wilmington.

Committee on Finance—Dr. G. T. Sikes, Grissom; Dr. I. Fearing, Elizabeth City; Dr. Wm. M. Jones, High Point.

Committee on Obituary—Dr. C. A. Julian, Thomasville; Dr. P. R. McFayden, Randleman; Dr. J. W. McGee, Jr., Raleigh.

Delegates to the American Medical Association—Dr. T. E. Brown, Asheville, Alternate; Dr. J. V. McGougan, Fayetteville.

Delegates to Mississippi Valley Association—Dr. C. O'H. Laughinghouse, Greenville; Dr. James S. Rhodes, Williamston; Dr. Chas. T. Harper, Wilmington; Dr. C. S. Jordan, Asheville; Dr. J. R. McCracken, Waynesville; Dr. W. H. H. Cobb, Goldsboro.

Delegates to the Virginia Medical Association—Dr. M. Bolton, Rich Square; Dr. Fletcher R. Harris, Henderson; Dr. R. E. Lee, Goldsboro; Dr. S. M. Mann, Moyock; Dr. R. O. Dees, Greensboro.

Delegates to the South Carolina Medical Association—Dr. C. A. Peterson, Spruce Pine; Dr. W. H. Ward, Plymouth; Dr. J. E. Ashcraft, Monroe; Dr. J. D. Waldrop, Hendersonville.

Place of Meeting—Wrightsville Beach, third Tuesday in June, 1910.

Chairman of Committee of Arrangements—Dr. Geo. G. Thomas.

Chairmen of Sections, Session 1910.

Anatomy and Surgery—Dr. John Hey Williams, Asheville.
Materia Medica and Therapeutics—Dr. C. S. Grayson, High Point.
Practice of Medicine—Dr. Wm. R. Kirk, Hendersonville.
Physiology and Chemistry—Dr. Charles S. Mangum, Chapel Hill.
Obstetrics—Dr. Joseph Graham, Durham.
Gynecology—Dr. J. Ernest Stokes, Salisbury.
Medical Jurisprudence and State Medicine—Dr. Chas. O'H. Laughinghouse, Greenville.
Pathology and Microscopy —Dr. Paul H. Ringer, Asheville.
Railway Surgery—Dr. Robert L. Gibbon, Charlotte.
Pediatrics—Dr. James W. McGee, Jr., Raleigh.

MINUTES

OF

The Fifty-Sixth Annual Meeting of the Medical Society of the State of North Carolina, held at Asheville, in the ball-room of the Battery Park Hotel June 15, 16 and 17, 1909

The fifty-sixth annual meeting of the Medical Society of the State of North Carolina was a most enjoyable affair, and was well attended by both members and distinguished guests.

The Convention was called to order by Dr. Brown, Chairman of the Committee of Arrangements.

Rev. R. F. Campbell, D.D., Pastor of the First Presbyterian Church, delivered the divine invocation.

Dr. Brown then introduced Judge T. A. Jones, a prominent member of the Asheville Bar, who delivered a very enjoyable address of welcome, which was responded to, on behalf of the Society, by Dr. C. A. Julian, of Thomasville.

The President then read a very able address,—"The Relation of the Medical Profession to the people along the Lines of Hygiene and Preventive Medicine," at the conclusion of which Dr. Parrott, of Kinston, moved that the address be referred to a committee to report on the same, and Doctors Albert Anderson, J. T. J. Battle, A. A. Kent and James M. Parrott were appointed to serve on that committee.

The program was then taken up, and Dr. E. J. Wood, of Wilmington, Chairman of the Section, "Practice of Medicine," read a paper entitled, "A Further Report on the Pellagra Problem," which paper was discussed by Doctors Rankin, A. J. Crowell and M. E. Roberson.

Dr. Mary E. Lapham, of Highlands, delivered an address on "Modern Methods in the Treatment of Tuberculosis in

Switzerland," at the conclusion of which the Society took a recess until half past three.

During the morning session Dr. Battle, of Asheville, invited the members to visit Biltmore Hospital; a telegram, extending fraternal greetings, was read from the President of the State Pharmaceutical Society, and a reception, to be held at Dr. James A. Burroughs's residence, the same evening, was announced, and the members, together with their wives, daughters and invited guests, were asked to attend.

TUESDAY AFTERNOON, June 15.

Convention called to order by the President.

Dr. McBrayer, of Asheville, introduced Dr. J. Garland Sherrill, of the University of Louisville, Ky., a North Carolinian by birth, who read a paper on "Surgical Diseases of the Kidney," which was discussed by Dr. Lloyd Russell.

Dr. Templeton, of Cary, then read a paper, "The Legal vs. the Medical Profession," and was vociferously applauded. Dr. Cobb, of Goldsboro, moved that Dr. Templeton's paper be published in pamphlet form, and distributed throughout the State. Motion seconded by several and carried.

Report of Examining Board read by Dr. Ben K. Hays, of Oxford. Upon motion of Dr. Anderson, the report received and adopted.

"Surgery in the Year 1700; Treatment of Club Foot," read by Dr. Wm. Moncure, of Raleigh.

Paper by Dr. Ellsworth Eliot, of New York, on "Some Clinical Features of Tumors of the Female Breast, with Special Reference to End Results."

Discussed by Doctors Weaver, J. Garland Sherrill, J. M. Parrott, Whittington, and J. A. Reagan.

Paper by Dr. Dunbar Roy, Atlanta, Ga., "Rational Status in the Present Day Treatment of Nasal Diseases."

Discussed by Doctors Whittington, Kirk, and Whisnant.

Address by Dr. Charles Wardell Stiles, of the Marine Hospital Service, on "Hook Worm Disease."

Discussed by Doctors Julian, Wood, Bellamy, Philips, and Templeton.

Paper read by Dr. J. Vance McGougan, Chairman Section of Railway Surgery, entitled "Shock," discussion of which was deferred until the next morning.

WEDNESDAY MORNING, June 16.

Society called to order by the President.

Discussion on Dr. McGougan's paper opened by Dr. Bahnson, of Winston. Dr. Philips asked that the privileges of the floor be accorded Doctors Lloyd and Eliot, of New York. Dr. McGougan's paper further discussed by Doctors McCoy and Cobb.

The President here stated that the election of two medical examiners for the nurses of North Carolina would be had, office to be held for two years.

"Traumatic Neurosis," Dr. Samuel Lloid, New York. Discussed by Doctors Parrott and McNider.

Doctors McMullan, of Elizabeth City, and Julian, of Thomasville, were nominated, nomination seconded by several, and upon motion of Dr. Crowell, of Charlotte, these two nominees were elected by acclamation.

"Tertian Infection, Golgi Organism, Fatal with Gastro-Enteric Symptoms," by Dr. J. J. Philips, Chairman Section Pediatrics."

Discussed by Doctors Parrott, Albert Anderson, Cyrus Thompson and Wood.

"Tuberculin in Diagnosis Applied to Children," Dr. Richard Urquhart, Johns Hopkins, Baltimore, Md.

Discussed by Doctors Stiles and Kirk.

Society took a recess until 2:30 P. M.

CONJOINT MEETING BOARD OF HEALTH WITH THE NORTH CAROLINA MEDICAL ASSOCIATION.

The conjoint meeting was called to order at twelve o'clock Wednesday, immediately after the adjournment of the State Medical Society, by Dr. Thomas, Chairman, who told of the retirement to take place by Dr. Lewis, for fifteen years Secretary of the State Board of Health, and expressed his regret at Dr. Lewis's action.

Report of the Secretary read by Dr. Lewis.

Upon motion the Secretary's report adopted.

A brief report of work done in the State Laboratory was read by the Secretary.

Doctors Albert Anderson, F. R. Harris, W. S. Rankin and C. W. Stiles made brief addresses, expressing regret at Dr. Lewis's retirement from office.

Dr. Rankin was named as Dr. Lewis's successor.

Dr. Lewis then announced a meeting of the Board of Health in another room at a quarter to three, Wednesday afternoon, and adjourned the meeting.

Wednesday Afternoon, June 16.

Convention called to order by the President.

At the opening of the afternoon session considerable discussion was had upon a portion of sec. 7, chap. 4, of the By-laws adopted in 1903, at the Hot Springs meeting, finally ending in a motion of Dr. Templeton's that the matter be taken under consideration for the next year's work.

Paper by Dr. Rankin, Chairman Section Pathology and Microscopy, "The Influence of Pathology on Materia Medica and Therapeutics."

Discussed by Dr. Wood.

"Serum Therapy in Meningitis," Dr. F. R. Harris, Henderson.

Dr. Applegate, Chief Surgeon of the Southern Railway, introduced by Dr. Way, and privileges of the floor extended him by rising vote.

"Hæmaturia," Dr. A. J. Crowell, Charlotte, N. C.

Discussed by Doctors Reagan and King.

"A Plea for the State to Educate the Public in Infectious Diseases," Dr. W. P. Holt, Chairman Section Medical Jurisprudence and State Medicine.

Discussed by Doctors Reagan and Stiles.

"The State's Duty in the Fight Against Infectious and Contagious Diseases," Dr. J. W. Halford, Chalybeate Springs.

The convention then adjourned until 8:30 P. M.

Wednesday Evening, June 16.

Society called to order by the President.

Report of Chairman of Obituary Committee read by Dr. Julian. Memoir of Dr. P. E. Hines, read by Dr. A. W. Knox.

A beautiful tribute to Dr. Hines was also paid by Dr. Templeton, of Cary.

Annual Oration, "The Evolution of Medical Science, a Symposium of Its Past and Its Manifest Destiny." Dr. Chas. W. Moseley, Greensboro.

Annual Essay, Dr. W. L. Dunn.

THURSDAY MORNING, June 17th.

Society called to order by the President at 9:30.

The Section of Obstetrics was taken up, and a paper read by the Chairman, Dr. A. Bascom Croom, "The Country Midwife."

This subject was animatedly discussed by Doctors Dickinson, Halford, Robinson, Payne, Cyrus Thompson, McKee Tucker, Sykes, Burroughs, Ashby, and Laughinghouse.

"The Treatment of Puerperal Eclampsia," Dr. A. A. Kent, Lenoir.

Discussed by Doctors Spencer, Laughinghouse, Ashby and Harris.

Dr. J. T. J. Battle here read report of the Committee appointed to draft resolutions in regard to Dr. Lewis's retirement from office.

Moved by Dr. Harris that the report of this Committee be received and filed and spread upon the minutes, and that a rising vote of thanks be had to express further the appreciation of the Society, of Dr. Lewis's usefulness that he has been to the profession of North Carolina during his term of office; which resolution was unanimously carried by rising vote.

"Importance of the Early Recognition of the Indications of Cæsarean Section," Dr. H. McKee Tucker.

Discussed by Doctors Strong, Dees and Payne.

"Frigidity, from a Sociological and Gynecological Viewpoint," Dr. C. M. Strong, of Charlotte.

Discussed by Dr. Thompson.

"A Review of One Hundred Cases of Laparotomy," Dr. W. P. Whittington, Asheville, N. C.

Discussed by Dr. Robinson.

THURSDAY AFTERNOON, June 17.

Convention called to order by the President.

Report from the Nominating Committee read by Dr. Stanton, as follows:

The Nominating Committee met and organized with Dr. A. A. Kent, President; Dr. B. L. Long, Secretary, and the following gentlemen were nominated as officers of the Medical Society of North Carolina:

President.—Dr. J. A. Burroughs, Asheville.

First Vice-President.—Dr. E. J. Wood, Wilmington.

Second Vice-President.—Dr. John Q. Myers, North Wilkesboro.

Third Vice-President.—Dr. L. D. Wharton, Smithfield.

Secretary.—Dr. D. A. Stanton, High Point.

Orator.—Dr. Cyrus Thompson, Jacksonville.

Essayist.—Dr. R. V. Brawley, Salisbury.

Leader of Debate.—Dr. D. A. Garrison, Gastonia.

Treasurer.—Dr. H. D. Walker, Elizabeth City.

Delegate to the American Medical Association.—Dr. T. E. Brown, Asheville.

Alternate.—Dr. J. V. McGougan, Fayetteville.

Public Policy and Legislation.—Dr. R. H. Lewis, Raleigh; Dr. Albert Anderson, Raleigh; Dr. Geo. G. Thomas, Wilmington.

Committee on Publication.—Secretary *ex officio;* Dr. H. A. Royster, of Raleigh; Dr. R. L. Gibbon, of Charlotte.

Committee on Scientific Work.—Secretary *ex officio;* Dr. T. S. McMullan, Hertford; Dr. Harlee Bellamy, Wilmington.

Committee on Finance.—Dr. G. T. Sykes, Grissom; Dr. I. Fearing, Elizabeth City; Dr. Wm. M. Jones, High Point.

Committee on Obituary.—Dr. C. A. Julian, Thomasville; Dr. P. R. McFayden, Randleman; Dr. J. W. McGee, Jr., Raleigh.

Delegates to Mississippi Association.—Dr. C. O'H. Laughinghouse, Greenville; Dr. James S. Rhodes, Williamston; Dr. Chas. T. Harper, Wilmington; Dr. C. S. Jordan, Asheville; Dr. J. R. McCracken, Waynesville; Dr. W. H. H. Cobb, Jr., Goldsboro.

Delegates to the Virginia Medical Association.—Dr. M. Bolton, Rich Square; Dr. Fletcher R. Harris, Henderson; Dr. R. E. Lee, Goldsboro; Dr. S. M. Mann, Moyock; Dr. R. O. Dees, Greensboro.

Delegates to the South Carolina Medical Association.—Dr. C. A. Peterson, Spruce Pine; Dr. W. H. Ward, Plymouth; Dr. J. E. Ashcraft, Monroe; Dr. J. D. Waldrop, Hendersonville.

Place of Meeting.—Wrightsville Beach, third Tuesday in June.

Chairman Committee of Arrangements.—Dr. George Thomas.

Moved by Dr. Register that the report, as read, be adopted. Motion carried.

Treasurer's Report read by the Secretary.

Moved by Dr. Harris that the Treasurer's report, as audited by Doctors Anderson and Bolton, be accepted. Motion carried.

The President, after hearing the above reports, stated that owing to the fact that there were so few members present, the majority of them riding around Biltmore, at the time, he thought it perhaps well to install the new President, and adjourn, and Doctors Bolton and Register were appointed to escort him to the chair.

Upon the installation of Dr. Burroughs, Dr. Julian moved that the "Association extend thanks to the good people of Asheville, the Medical Society of Buncombe County, the Battery Park Hotel and the press, for the kind notices and nice entertainment given it while in the city."

Motion seconded by several and unanimously carried.

Upon motion of Dr. Register, the convention adjourned sine die.

The following papers were read by title:

"Myiasis," Dr. J. L. Nicholson, Richland.

"The Experimental Study of the Action of Alcohol in the Production of Arterio-Sclerosis," Dr. Wm. DeB. MacNider, Chapel Hill.

"Diet in Typhoid Fever," Dr. Edwin C. Register, Charlotte.

"The Economic Importance of Preventive Medicine," Dr. W. J. McAnally, High Point.

"Impotence," Dr. Baxter Haynes, Cliffside.

"Tonsilitis, its Treatment and Importance of Same," Dr. S. P. Burt, Louisburg.

"Apoplexy," Dr. E. F. Strickland , Bethania.

"The Detection of Feigned Blindness in one or both Eyes," Dr. H. H. Briggs, Asheville.

"Milk Sickness or Fall Poison," Dr. J. M. Hodges, Banners Elk.

"Five Hundred Cases of Headache," Dr. G. S. Tennent, Asheville.

"The Neglected Field of the Physician," Dr. M. Eugene Street, Glendon.

"Selling Diplomas to Medical Men," Dr. H. D. Stewart, Monroe.

"Clinical Notes on Sanitarium Work," Dr. J. C. Walton, Richmond, Va.

"A Case of Osteomalacia," Dr. J. Stevens Brown, Hendersonville.

"Pneumonia," Dr. Stuart Mann, Moyock.

"The Business Methods of the Physician," Dr. E. G. Moore, Elm City.

"Report of Cases," Dr. W. O. Spencer, Winston-Salem.

"Some Common Nervous Symptoms and their Significance," Dr. J. P. Munroe, Charlotte.

"Bacteriuria," Dr. J. Meigs Flippin, Winston.

"Empyema in Children—Personal Experience in Diagnosis and Treatment," Dr. J. R. Paddison, Oak Ridge.

"Prophylaxis in Typhoid Fever," Dr. W. P. Horton, North Wilkesboro.

"Typhoid Fever from the Experience of a Practitioner in the Mountains of N. C. and Va.," Dr. S. E. Pennington, Sturgills.

"The Liver," Dr. J. W. Wallace, Concord.

"Personal Experience in the Diagnosis and Treatment of a Number of Cases of Gastric Neuroses," Dr. J. Allison Hodges, Richmond, Va.

"The Play Impulse in Public Health," Dr. W. A. Lambeth, Charlottesville, Va.

"Adenoids," Dr. J. G. Murphy, Wilmington.

"Morphinism, a Variety of Comments," Dr. S. M. Crowell, Charlotte.

"The Increasing Frequency of the Use of Narcotic Drugs by Members of the Medical Profession and the Probable Cures for It," Dr. C. W. Ashworth, Greensboro.

"After Care of Surgical Cases," Dr. Henry Norris, Rutherfordton.

"An Antiseptic Leech," Dr. W. D. Witherbee, Charlotte.

"The Surgical Treatment of Epilepsy," Dr. Rigdon O. Dees, Greensboro.

"Dislocation of a Cervical Vertebra," Dr. E. T. Dickinson, Wilson.

"Foreign Bodies Migrating the Human Body," with report of case, Dr. Brodie C. Nalle, Charlotte.

"Report of a Case of Double Compound Fracture of the Leg," Dr. Jas. A. Turner, High Point.

"Perinephritis and Perinephritic Abscess," Dr. R. H. Moorefield, Westfield.

"Framing the Gynecologist," Dr. H. A. Royster.

"Ephraim McDowell," Dr. Joseph Graham, Durham.

"The Urinometer in Obstetrical Practice," Dr. J. S. Gibson, Gibson.

"The Management of Obstetrical Cases Complicated by Contracted Pelves," Dr. L. M. Allen, Baltimore, Md.

"Concerning Monsters," Dr. R. H. Whitehead, Charlottesville, Va.

"Pregnancy Complicated by Malformation of Uterus and Vagina," Dr. J. N. Taylor, Bynum.

"Dead Fœtus, seven months with complete Placenta Prævia," Dr. J. W. McGehee, Reidsville.

"An Analysis of Eighty Cases of Labor," Dr. K. P. B. Bonner, Morehead City.

"A Study of the Curds in Infant Stools," Dr. Charles Roberson, Greensboro.

"Healthful Children," Dr. J. Stevens Brown, Hendersonville.

"Anaphylaxis," Dr. Richard M. Duffy, New Bern.

"Pathology of Hæmoglobinuric Fever," Dr. W. T. Parrott, Kinston.

"Arterio-Sclerosis of the Uterus," Dr. Robt. B. Slocum, Wilmington.

"Some Recent Views Concerning Typhoid Fever," Dr. L. B. Newell, Charlotte.

"The Present Status of Our Knowledge of the Thyroid Bodies," Dr. I. H. Manning, Chapel Hill.

"A Review of the Physiology of the Heart's Action," Drs. Wm. S. Jordan and J. M. Lilly, Fayetteville.

"A Review of Some of the Recent Researches in the Physiology of the Alimentary Canal," Dr. Robt. H. Lafferty, Charlotte.

"Gastric Functions—Harmones," Dr. C. N. Peeler, Charlotte.

"Progress in the Administration of Medicine," A New Era of Scientific Therapeutics," Dr. H. Bascom Weaver, Asheville.

"The Transmission of Disease by Flies," Dr. Charles S. Grayson, High Point.

"Cathartics," Dr. M. A. Royals, Yadkinville.

"Fracture of the Skull," Dr. I. F. Hick, Dunn.

"The Dangers of the Present Tuberculin Era," Dr. W. L. Dunn, Asheville.

"Pulmonary Tuberculosis, a Few Practical Observations on, from the Viewpoint of a Practitioner in Western N. C.," Dr. J. Howell Way, Waynesville.

"Some Phases of the Tubercular Problem," Dr. P. R. McFayden, Randleman.

"Fallacies Past and Present in the Treatment of Tuberculosis," Dr. Wm. M. Jones, High Point.

"Hemorrhage from the Lungs in Pulmonary Tuberculosis," Dr. W. R. Kirk, Hendersonville.

"The Need of Aggressive Action in the Crusade Against Tuberculosis," Dr. C. A. Julian, Thomasville.

"Relation of the Life Insurance Company to the Agent," Dr. Albert Anderson, Raleigh.

"Medical Examinations Against the Commercial Report," Dr. J. T. J. Battle, Greensboro.

"Life Insurance and Mortality," Dr. J. M. Parrott, Kinston.

The program of entertainments was as follows:

Reception at Mission Hospital, 4:30 to 6:00 P. M.

Reception at home of Dr. Burroughs, 9:00 to 11:00 P. M. Tuesday, June 15th.

Cards for ladies at Battery Park Hotel, 10:00 to 12:00 A. M.

Barbecue at Overlook Park, and reception at Asheville-Biltmore Sanitarium, June 16th.

Musicale for ladies at the home of Dr. Carroll, 10:30 to 12:30. Drive over Biltmore estate in the afternoon, June 17.

Privileges of all clubs extended the members.

OPENING INVOCATION

By Rev. R. F. Campbell.

Let us pray.

Almighty, most merciful, and ever blessed God, we worship Thee as the Creator and Preserver of all mankind, the framer of our bodies and the God of our spirits, the God in whom we live and move and have our being. We thank Thee that Thou hast made us in Thine own image, and in Thine own likeness, that we might think Thy thoughts after Thee, and rejoice in the work of Thy hands, and enter into fellowship with Thee.

And now, most merciful Father, we beseech Thee to let Thy blessing rest abundantly upon this convention of Thy servants, whom Thou hast called to minister to their fellowmen in their hours of suffering and of great pain; endue them with the spirit of wisdom and of understanding, and lead them ever into the knowledge of the means which Thou, in Thy mercy, hast provided for the alleviation of pain and for the healing of sickness, and bless each one of them in his person, in his family, and in the duties of his high calling.

Bring them all, we beseech Thee, to a fuller knowledge of life and of death, and of Thy saving help for sin—the leprosy of the soul—and bring them, by Thy grace, both in their personal and in their professional life, into the fellowship of Jesus Christ, Thy Son, the Great Physician, who bears our sickness about in His heart, even as He bore our sins in His own body upon the tree.

We ask it all in Thy name.

Amen.

ADDRESS OF WELCOME

By Judge Thomas A. Jones, of the Asheville Bar.

Mr. Chairman and Gentlemen of The Medical Society of the State of North Carolina:

I duly appreciate the honor done me by Mayor Campbell in asking me to welcome you to Asheville. If the Mayor was speaking, I know that he would say much more of our city than I shall say, for when he begins speaking of the city that has twice honored him, and that he has twice honored, he never knows when to stop talking. But somehow I feel that it is useless to tell any audience of cultivated North Carolinians of our city, for they know all about it; and whether you come from Eastern, Piedmont, or Western North Carolina you are all proud of Asheville.

Asheville is advertised by her loving friends, and if you are not such now I am sure that you will be after you stay here a few days and enjoy the hospitality of the city, and more particularly the hospitality and courtesies of the splendid physicians who live here. Without flattery I can truly say that take them all in all, Asheville physicians, old and young, are a splendid set of men.

Some of the older ones are of State and National reputation, and many of the younger ones are destined to a brilliant future, and some day your Society will be proud to have them among its members.

Please pardon a personal reference when I say that I have the greatest respect for your profession, for my grandfather, Thomas Atkinson, whose name I bear, was a graduate of Jefferson Medical College, and was for years the president of the Virginia Medical Society; and my son, who also bears his name, has decided to study medicine, and

I therefore feel that I am somehow linked with your profession, both by ancestry and posterity. I also know the value of good physicians from personal experience with them.

I am not one of those who have so much religion, Christianity and science that they can do without physicians. When I have a stomachache it is to me "a condition and not a theory" that confronts—or rather fronts me, and no amount of thinking, or psycho-therapy prevents that pain from being there, and growing, and if ordinary remedies do not stop it, I want a doctor, and that blame quick, for on such occasions I have found them "a very pleasant help in time of trouble."

And my observation is that most physicians have just as much Christianity, and far more science than have those people who deride them and their medicine. For after all the newfangled ideas the truth still remains as uttered by Byron's immoral but immortal hero, Don Juan:

> "Physicians mend or end us,
> *Secundem artem;* but although we sneer
> In health—when ill, we call them to attend us
> Without the least propensity to jeer."

I know that it is the habit of some members of my profession to jeer at yours, particularly at medical experts, and to quote the saying attributed to old Ben Butler that "there are three kinds of liars—a natural born liar, a damn liar and a medical expert." I do not know much about the medical experts of Butler's state (Massachusetts), but I believe he slandered them. I do know that those of North Carolina are not liars, but on the contrary that they testify to the truth as they see the truth, and that on the witness stand they conduct themselves as courteous gentlemen.

In this connection, speaking of medical experts, will you allow me to give you some advice, and departing from my

usual custom I will not charge anything for it. I advise that you gentlemen pay some attention to the study of law, and particularly to the study of Medical Jurisprudence.

Sir William Blackstone, whose commentary on the laws of England is still in England and the United States the first text-book for all law students, in his introductory lecture at the University of Oxford in 1758 endeavored to demonstrate that every gentleman should have some acquaintance with the laws of his country and he used this language: "For I think it an undeniable position, that a competent knowledge of the laws of that society in which we live, is the proper accomplishment of every gentleman and scholar, an highly useful, I had almost said essential, part of liberal and polite education." He then undertook to make it apply to the different avocations of life, and in applying it to your profession put it quaintly thus: "For the gentlemen of the faculty of physic, I must frankly own that I see no special reason why they in particular should apply themselves to the study of the law, unless in common with other gentlemen, and to complete the character of general and extensive knowledge, a character which their profession, beyond others, has remarkably deserved. They will give me leave, however, to suggest, and that not ludicrously, that it might frequently be of use to families upon sudden emergencies, if the physician were acquainted with the doctrine of last wills and testaments, at least so far as relates to the formal part of their execution."

If this was true in Blackstone's days with how much more force and reason does it apply now, for in his day I dare say that medical experts were unknown, but now any physician is liable to be examined as an expert; and therefore he should have some familiarity with the rules of evidence in such cases. I advise you to read Blackstone's Introductory Lecture, purely as a literary treat, for it is a master-

piece of pure, faultless English. But for something practical and helpful you should undoubtedly read some works on Medical Jurisprudence, and I recommend Reese's Medical Jurisprudence and Toxicology, in one volume, and Wharton and Stille's Medical Jurisprudence, 5th edition, in 3 volumes.

I really should not give you this advice, for if you will act upon it, in my opinion, you will be enabled to hold your own on the witness stand with any attorney who is rash enough to tackle you on cross-examination, and who by the study of two weeks of insanity or concussion of the spine will eloquently convince a jury that he knows more about the subject than does the expert. I have a client who sued a railway company for damages for concussion of the spine received in a wreck, and he studied a book on the subject, knew all the symptoms, had all the symptoms, and put the experts to flight, and won his case.

One trouble with experts is that they swear too positively, attempting by their evidence to make their science an exact one, while it is really, I should say, a conjectural art or science. But the thing that does more to weaken your evidence before a jury is the unnecessary use of technical terms, when ordinary words would suffice. A jury is not composed altogether of educated men, and even if they were educated they would be nonplussed by some of your technical jargon. Talk to them whenever possible in United States language and not in Latin. They know what a hunchback is, but fail to recognize him as having a kyphonic spine; they have heard the word swayback, but not lordosis; they all have a shinbone but rebel at it being called tibia; they have seen a clubfoot, but will decide a case against an expert who dares to call it talipes-equinovarus.

I once heard a young doctor attempt to describe a bullet wound. I would have said that the bullet went through the

heart and lodged in the spinal cord, and I flatter myself that a Buncombe jury would have understood me, but this young doctor scorned to use such plain talk, so instead he said that "the point of entrance was on the anterior surface of the body, two and one-half inches to the left of the mid-line of the sternum, between the fourth and fifth ribs, penetrating the pleural cavity and left ventricle of the heart and destroying completely the seventh intervertebral fibro-cartilage." The effect of this language on the jury was almost as fatal as the effect of the bullet on the deceased.

Do not think me unjustly critical gentlemen, for really I am trying to help you at the expense of my profession, and if some of my brother lawyers get hold of this address they may prefer charges against me at the Bar Association which meets here this month, for advising medical experts to the detriment of the legal profession.

As I remarked to you before, I have the greatest respect for your profession. The world in spite of its jeers has in all ages admired you. Even the cynical Voltaire spoke well of you, saying, "Nothing is more estimable than a physician who, having studied nature from his youth, knows the properties of the human body, the diseases which assail it, the remedies which will benefit it, exercises his art with caution, and pays equal attention to the rich and the poor"; and Quarles wrote, "Physicians, of all men, are most happy. Whatever good success soever they have, the world proclaimeth; and what faults they commit, the earth covereth."

And yet, gentlemen, I fear that your profession is threatened with two dangers that are likewise threatening mine, dangers which in my opinion will, unless checked, inevitably tend to greatly lessen that high esteem in which both professions are now held by the thinking public.

FIRST: THE TENDENCY TO BECOME TOO MECHANICAL.

I am well aware that in these times, physicians and lawyers necessarily are compelled to have in their offices various machinery; but may we not have too much of the thing? Let me illustrate by an incident showing what the old folks think of it. When I came to the bar in 1884, I went into the office of Davidson & Martin, the senior member being Hon. Theo. F. Davidson, who had just been elected Attorney General of the State. I, like most ambitious young lawyers, was anxious to have an up-to-date office, and I got the older members of the firm to equip it with bookcases, revolving bookcases, circular top desks, electric lights, telephones, letter presses, typewriters, duplicating machines, filing cases, etc. One day, Col. Allan T. Davidson, the father of Gen. Theo. F. Davidson who was the Nestor of the bar and an old lawyer of great ability, came into the office and sat down for a friendly talk. In a few minutes, he jumped up in a great state of excitement and exclaimed, "My Lord, I must get out of this office." I said, "Colonel, what is the matter?" and he replied, "There is too damned much machinery in here; I am afraid some of it will bust and kill me." Upon my assuring him that the machinery was non-explosive, he resumed his seat and said, "Jones, times have changed powerfully since I was a young lawyer. In those days a law office had to have books and a man in it with brains who could study and think, but now it seems that all that is necessary for a law office is a lot of infernal machinery. I suppose my son Theodore has you in here as a machinist."

Now does not this charge of the old Colonel against me also apply against a city physician? I confess that when I go into an office and see in it an X-ray machine, and all sorts of electrical appliances, a scale and measuring rod, things that look to me like cabinets in a spiritualist room,

typewriters, a compressed air pump, and things that look like huge boilers, and various and sundry other mechanical appliances, I do not know whether I am in a doctor's office, or in a boiler room of a manufacturing plant, an electric light plant, a photograph gallery or the parlors of a medium. Then, in addition to all this, no man can be a physician in a city now unless he is an expert chaffeur.

I suppose all this is necessary, but I sometimes fear that the tendency is to make you give less time to the study of medicine. Had you not better be on your guard against this tendency?

Second: The Love of Money.

The second danger is the great desire to be mere money makers. We all recognize the fact that this is a commercial age and that a man is generally sized up by his bank account. And, knowing this, the professional men are straining too much after money. We all know that a laborer is worthy of his hire and that it is a laudable desire to make money, but if we put money above everything else, then we run the risk of making our business not a profession but a trade. It is so easy for one to violate the ethics of the profession and thereby make money. To illustrate: A lawyer may bring a suit in perfect good faith and afterwards discover that owing to facts of which he was ignorant or owing to some recent decisions of the Supreme Court, that it is useless to conduct the case further. As an honest man, he should so inform his client; as a dishonest one, he will buoy his client up with hopes and fight a losing case for the mere sake of gaining fees. A physician may see that his patient's case is hopeless and that it is useless for him to be paying continued visits. As an honest physician, he would tell his patient so; as a dishonest one, he would buoy him up with hope and continue his visits at so much per visit. You will recall the case mentioned by St. Mark

of "a certain woman, which had an issue of blood for twelve years and had suffered many things of many physicians and had spent all that she had, and was nothing bettered, but rather grew worse." Her physicians surely must have been dishonest.

Men who love fame naturally desire that which will make them most famous, and they know that if the most celebrated physician in the United States, or if Chief Justice Fuller of the Supreme Court of the United States were to come to Asheville and walk down Patton Avenue, they would not receive one-hundredth part of the adulation and admiration that John D. Rockefeller or Andrew Carnegie would receive. But, gentlemen, do not let these things make you work for mere money instead of for the good of your profession, for a man, to get his best results and be true to himself, must work for the love of his work and for the good of his fellow-man.

These remarks about becoming too mechanical and the love of money apply, I think, more to the city physician. I now wish to speak briefly of the country doctor and, if there are any here, I wish to take off my hat to them in reverence, for I believe that an honest country doctor is the noblest work of God.

I spent my youth and early manhood on a farm, and I know something about the country doctor. For him there are no office hours from 11 to 1 and from 3 to 4; no negro boy at his beck and call; no automobiles. But with him all hours are office hours, and he is always subject to the visits of his patients. He generally waits on himself, hitches his own horse to an old buggy, or throws his saddle-bags or medicine cases over his horse and is off for a trip of from five to twenty miles, often way up in the coves of the mountains across swollen and dangerous mountain torrents.

But, gentlemen, I have not the power to adequately picture the country doctor. It has been done most eloquently

and touchingly by John Watson (Ian McLaren) in his sketch, "A Doctor of the Old School," in his ideal picture of William MacLure, the good old doctor of Drumtochty. Does not this describe a country doctor in any community, or as we mountain people call it "settlement"? Listen:

"He did his best for every man, woman and child in this wild, straggling district, year in, year out, in the snow and in the heat, in the dark and in the light, without rest and without holiday for forty years."

And to this:

"But he could ride faster, stay longer in the saddle, and had a firmer grip with his knees than any one I ever met, and it was all for mercy's sake. When the reapers in harvest time saw a figure whirling by in a cloud of dust, or the family at the foot of Glen Urtach, gathered around the fire on a winter's night, heard the rattle of a horse's hoof on the road, or the shepherd, out after his sheep, traced a black speck moving across the snow to the upper glen, they knew it was the doctor, and, without being conscious of it, wished him God speed.

"Before and behind his saddle were strapped the instruments and medicines the doctor might want, for he never knew what was before him. There were no specialists in Drumtochty, so this man had to do everything as best he could, and as quickly. He was chest doctor and doctor for every other organ as well; he was accoucheur and surgeon; he was oculist and aurist; he was dentist and chloroformist, besides being chemist and druggist."

Read the description of MacLure's fight with death, saving Saunders.

He tells of the scars received by MacLure in his mountain trips and says with truth:

"But they were honourable scars, and for such risks of life men get the Victoria Cross in other fields."

The honest country doctor is to me, gentlemen, a hero.

I know that I have taken up too much of your time, so must hasten on.

While Asheville gladly welcomes you, yet we can not but wonder why you came here, for Asheville's climate is so superb, the people are all so healthy we have no need of physicians. It is true we have about sixty doctors here, but is that any sign that Asheville is unhealthy and has need for so many physicians? Nay, verily, for we have eighty-eight lawyers here and Asheville is the most law-abiding city in the State, and I will make affidavit that there is not enough business here for twenty lawyers.

Asheville has all varieties of doctors; male and female; white and colored; allopathic, homeopathic, osteopathic, kiropractic—and I do not know what other variety of pathic, but we certainly have all varieties.

We have doctors that are Brown and some that are Green. An Archer that will sometimes go to Battle. A doctor that is a Major and one that is a Minor, a Ringer, a Sawyer and a Weaver. Doctors that are severe (Sevier) and some that are not so severe, for I know that one of them is a Merrimon. And the doctors knowing that there was not enough profit in the practice of their profession, have resurrected a prophet and brought here an Elias, and they say that, as in the old Biblical days that Elias sometimes has to come across Jordan.

Did we not have enough doctors without a Medical Society meeting here? Are not sixty bad enough? You will recall the old lines:

> "See one physician, like a sculler, plies,
> The patient lingers, and by inches dies,
> But two physicians, like a pair of oars,
> Waft him more swiftly to the Stygian shores."

If two physicians will waft us to the Stygian shores, how many of us will be wafted thither by sixty, plus the Medical Society?

But, gentlemen, leaving joking aside, let me say that Asheville wishes your Society all success at this meeting. We trust that you will have a jolly good time socially, and that your deliberations will result in much good to your profession, and therefore to the good of mankind.

I think it is the consensus of right opinion that your profession, next to the ministry, is the greatest and noblest of all professions. The clergy strive to cure and save the soul; you strive to cure and save the body; and when you reflect how closely are connected body and soul, that the body is "the temple of the Holy Ghost," you should be more and more impressed with the seriousness nay even the sacredness and holiness of your profession.

In my humble judgment, a good, honest doctor need not fear the hereafter, although he may not be a saint, or very pious. For among the titles of the Man of Galilee, was that of the Great Physician, and he not only cared for the souls of men, but he was most solicitious for the welfare of their bodies, for "he went about all Galilee," not alone "teaching in their synagogues and preaching the gospel of the kingdom," but also "healing all manner of sickness and all manner of diseases among the people." And I say it with all reverence that I do believe that, if there is any class of men more than another, for whom Jesus will have pity, mercy and compassion it is physicians, who strive honestly to aid, help and uplift the bodies of their brothers and the brothers of Jesus, for inasmuch as you did it unto one of the least of them, His brothers, you did it unto Him.

My prayer, Asheville's prayer for one and all, is the prayer of the good old Presbyterian Drumsheugh over William MacLure, when he knelt and prayed:

Almighty God—dinna be hard on Weelum MacLure, for he's no been hard wi' enybody in Drumtochty—Be kind tae him as he's been tae us a' for forty year—We're a' sinners afore Thee—Forgive him what he's dune wrang, an' dinna

cuist it up tae him—Mind the fouk he's helpit—the weemen an' bairnies—an' gie him a welcome hame, for he's sair needin' 't after a' his wark—Amen."

And I trust that when your work is over, and when you who saved others and can not save yourself shall appear before the Great Physician, that you may hear the glad words,

"Come, ye blessed of my father—I was sick and ye visited me."

RESPONSE TO THE ADDRESS OF WELCOME

By Dr. Chas. A. Julian, Thomasville.

Mr. Chairman, Ladies and Gentlemen:

On behalf of the Society, as well as personally, I wish to express to you our appreciation of the welcome so generously extended to the members of the North Carolina Medical Society.

Sir, we feel indeed gratified that you should welcome us within your sacred precincts. The modesty of your people in not limiting your territory to this earth alone, but claiming also the "Land of the Sky" speaks volumes, and shows your magnanimity by taking us within your pearly gates.

We have such pleasant recollections of our former visits here as your guests, that we are delighted to have the opportunity of renewing many old acquaintances, and forming new ones.

Our membership extends from the extreme east to the extreme west of the State, and in traveling to reach this oasis, many of our members have had to cross dusty, barren and desolate wastes. Their thirst and the joy of renewing old acquaintances may lead them to excesses, and I implore you to mete out justice for them as leniently as your city laws will permit.

You have gracefully presented to us the freedom of your city, and true to doctor's principles, I am willing to accept for this organization all the additional good things that I can secure for the pleasure of our members.

We feel a personal interest in Asheville and its wonderful climate. It is indeed a garden of Eden. Here the invigorating mountain air, coupled with the balmy breath of the pine, gives new life and vigor to the invalid, rejuvenat-

ing the over-taxed brain, nerves and body—in fact, rebuilding man.

Imagination does not paint anything any more charming than your scenery. Your mountain views beggar description; your valleys abounding in fertile loveliness; the great Appalachian chain guards your plateau with its loftiest peaks, towering thousands of feet high, and piercing the sky at an altitude greater than any peak east of the Rocky Mountains.

Reclining in her amphitheater of vine-clad hills, cleft by the golden currents of the Swannanoa and French Broad, and guarded by Pisgah's heights, Asheville is one of our most attractive cities. She is a beacon light. These peaks with a silent eloquence, incomparably more effective than all speech, are constantly reminding us not to forget the grand artificer of this grandeur.

The fascination exerted upon the visitor by such surroundings may be compared to that exerted by a charming woman, and when we consider the graceful undulations of your verdant hills, your fine climate of sun and showers typical of human smiles and tears, we can only exclaim, how beautiful! Some goddess has endowered this Appalachian pocket of perennial sunshine with an exceptional wealth of beauty and fertility.

Your city and this mountain region is famed the country wide. Few places in America can be found with the same climatic advantages as this God-favored and sunlit land. The recovery of sufferers from pulmonary affections affords ample proof of the healing properties found in this pure and exhilarating atmosphere. It is not difficult, therefore, to discover the subtle charm that lures us to this spot.

We feel a personal interest in Asheville and its wonderful development. We feel an interest in your schools and churches.

We feel an interest in your numerous hospitals, sanitaria, and well-kept charitable institutions, and it can be well said that you recognize your responsibility, and are truly your brother's keeper.

Your elegant hotels and palatial residences attest the confidence of your people in its city's future.

Here we see homes rich in treasure of wealth and taste perched upon every hillside. Here we find large hotels, where solid comfort abounds.

In this region we find marvelous variety and richness of plant-growth which has led our ablest business men and scientists to ask for its preservation for the pleasure of all our people.

Here we find pure water trickling from every crag and crevice; here we find picturesque cascades and waterfalls along the course of your mountain streams.

In mountain features, in forest and in climate, this region stands grandly out as the greatest physiographic feature in this continent.

On yonder hill, one hundred feet above the city, stands the Battery Park Hotel, taking the place of the old Confederate battery, and upon the same old breast-works grows beautiful and peaceful flowers instead of frowning guns.

Here we find the finest country place in America, and there are few, if any, in the world to compare with it in elegance of design and splendor of setting. Biltmore House fills us with astonishment and admiration, but like a wild mountain flower, it would not bear transplainting to another soil.

This spot is hallowed by the memory of our greatest hero and statesman. No man possesses a better burial place, gorgeous in artistic treasures of God's creation, yet simple as the humblest grave beneath the grass and flowers.

His is indeed an enviable immortality, enshrined in innumerable souls made happier by his life and labors.

In Riverside Cemetery his body rests. Who has not seen a Carolinian's eyes kindle when the name of Vance is mentioned? It is not strange for Carolinians to lead their children to these landmarks and under the same sky that Zebulon Vance beheld, and in the shadow of his monument repeat to them those deeds which are our State's proudest heritage.

In the history of this region, members of our noble profession have borne their part. Hardy, Hilliard, Nelson and Cain, your pioneer doctors, are still beloved, and I know of no one who takes as much interest in humanity today as the venerable Dr. J. A. Ragan. He is indeed the McLaren type of the doctor of the old school.

And now, my friends, it is our earnest desire that our stay on earth may be as pleasing as our sojourn here, and that our journey after death may have as grand scenery and pleasant surprises as we find in our journey here where your mountains are united to your valleys with ribbons of gold.

Among these scenes; in the midst of this lofty grandeur, let us gather fresh inspiration and hope, so that when we return to our homes, the influence of these environments will lead us to higher and nobler aspirations, and the determination to perfect a closer union with each other.

THE PRESIDENT'S ADDRESS

By J. F. Highsmith, M.D., Fayetteville.

Ladies and Gentlemen, Fellow Members of the Medical Society of the State of North Carolina:

To be the official head of this assembly is an honor for which I am grateful. Here and now I desire to assure you of my sincere appreciation of the honor of presiding over this, the 56th annual session of this learned body. It is my heart's most earnest desire to maintain the excellence of this organization and the high standard of my distinguished predecessors.

Fellow members, once again we have met together, for the fourth time, in the fair city of Asheville. A decade since our last meeting in this queenly city—the Switzerland of North Carolina—far famed for her hospitality to the stranger that is within her gates—known the world over for her beauty and her climate.

Great changes have come during these ten years. Many who were with us then have finished their work here and have been called to higher service, bequeathing to us examples of lives nobly lived, spent in unselfish service for others. Their lives have *not been lost,* for as Ruskin has said: "Every noble life leaves the fiber of it interwoven forever in the work of the world."

In casting about for a theme to speak to you upon to-day, many subjects present themselves to my mind, but it seems to me the question of the relation of the medical profession to the people along the lines of hygiene and preventive medicine, is one of the vital questions of the day. And certainly along these lines science looks to us for enlargement of the boundaries, by conquest over the domain of ignorance of the people.

It is probably true that in no other department of learning has education been advanced so rapidly as in medicine. Legislatures and leaders of the people everywhere are more and more looking to us, the medical profession, for proper information in the passage of laws to guard public health.

Ours is the noblest of professions, therefore, it is our duty, as special guardians of the people, to allow no false modesty to stand in our way to prevent in every way possible the spread of that which makes the lives of the innocent miserable.

As we are to consider the enlightenment of the people as to personal and municipal health and hygiene it might be well to briefly call attention, among ourselves, to some of the advances of the medical profession in the past few years. The past thirty years have been the most active period in the acquisition of medical knowledge and medical art. It marks the transformation from the old to the new. It is characterized by the most fruitful endeavors and the most brilliant achievements that have yet been added to the chronicles of the profession of medicine. The time has passed when this art is associated with witchcraft and superstition, but established on a firmer basis—when men are spending their lives investigating, experimenting and giving reasons.

Even less than twenty years ago the student could be graduated in medicine after two years of study. Only the crudest preliminary education was required. Surgery was narrow and limited compared with what it is to-day, and consisted chiefly in ligating for aneurism, performing tracheotomy, amputation and resection; operating for empyema, strangulated hernia, stone in the bladder; reducing dislocations; setting and dressing fractures; trephining for head injuries; caring for wounds; removing foreign bodies; and extirpating tumors. A few surgeons were doing ovariotomy. Comparatively few operations were done, and many ignorant

people were afraid of hospitals—would go to one only in the last extremity, and then went in deadly terror. In 1877 the great wave of surgical progress, which is one of the most notable events of a notable age, was beginning to form a moving billow.

Appendicitis was unknown, and was to remain so until Fitz, of Boston, published his paper in 1866. Mellin had guessed the truth in 1827, but he was suppressed by authority, and thousands died because of it. In 1887 drugs producing local anesthesia had not been discovered. The essential importance of embryology in solving many problems of disease was beginning to be appreciated. Pathology, chemistry, and physiology were becoming fruitful sources of marvels.

We have had the Laboratory of Anatomy for centuries—we must now have laboratories for at least a dozen other subjects. No hospital is complete at present without an up-to-date laboratory. No physician can intelligently practice his profession without the daily use of the microscope.

A few progressive and able men had grasped the full importance of the recent discovery of Pasteur—had realized that infectious diseases were probably due to bacteria, and that preventive medicine was destined to become one of the highest callings to which man could devote his brain and consecrate his life-work.

Antisepsis has wrought marvels as mighty as were ever conjured by the seal of Solomon. It really made possible most of the surgery of the brain, the chest, the abdomen, and the abdominal viscera. It has practically abolished the so-called blood poisoning as a sequel to surgical operations. It has immensely mitigated post-operative pain and fever; arrested puerperal septicemia with its destruction to the child-bearing woman. It has lessened the mortality of major amputations from 50 per cent to 5 per cent; of compound fractures of the long bones from over 50 per cent to 1 per

cent; of ovariotomy from 50 per cent to about 5 per cent, or less. The discovery of anesthesia, antisepsis, and the creation of the science of bacteriology have been the *three great* triumphs of medicine in the nineteenth century. The scientific practice of medicine is today based on objective pathological experiments. I believe to-day we are on the eve of still greater discoveries for the well-being of mankind.

As I have before said, with the light we have gained it is our solemn duty to our fellow-man to promote the general welfare of the communities in which we live, by instructing them. Everything pertaining to medicine is of vital interest to the public, to every man, woman and child, be they rich or poor. There is no science or art that has a closer relation to the human race than medicine, and none that is so clothed in mystery.

The question arises, How shall this education be accomplished? I answer, the leaders of the people and prominent men, who occupy responsible positions, must first be educated, for through them we can reach the masses. The education of the masses must be accomplished through public organizations —the press, the legislature, the churches and the schools. To preserve health and prevent disease are the objects of modern medicine.

Hygiene or preventive medicine has only arisen in the last forty years. It has lagged farther behind than any other branch in medicine. But this to be brought up with the other branches must be done by educating the masses, and getting them to understand and cooperate with us. Men must be educated for the purpose of teaching the people and through this channel we will be able to fight the preventable diseases.

If it is necessary to show that our knowledge of hygiene is still limited, we need only look around us in our own cities and towns, and country as well. A startling ignorance of the laws of health is found in almost every farm-house, cotton fac-

tory village, manufacturing village, and even in many of our cities to a large extent. Many diseases coming from these sources, as we know, are recognized as preventable, if the community was only aroused to the necessity, and the possibility of their prevention. But thanks be, there are signs of awakening! We notice that the University of Virginia has announced a summer course for the training of those interested in subjects connected with the prevention of disease and improvement of public health. This course began yesterday to continue until July 24th. It is especially for health officers, medical inspectors, and similar public officers. The same institution will inaugurate in September a four years course for the training of sanitary engineers. A course of lectures will also be given on selected topics on public health, some of which are intended especially for public health students, while others are open to all students in the University.

I hope to see this step taken by all the universities and colleges in this country.

The insurance companies are beginning to realize the great need of sanitary laws and their proper enforcement. To quote Dr. Irving Fisher, Professor of "Political Economy" of Yale, and president of the "Committee of One Hundred of National Health," in a recent address before the Association of Life Insurance Presidents, said: "A fall of the death rate always promptly follows sanitation. Colonel Gorgas cut the death rate of Havana in two, bringing it down to 15 per cent or less. The New York death rate responded at once to Col. Warrick's clean streets, and that of Rochester to Dr. Coler's milk crusade; and now it is announced that New York's death rate is 16.5 per cent, the lowest on record. A result in all human probability due to the hygienic work of Dr. Darlington, the efficient health officer; Nathan Straus, the milk reformer, and the public agitation for health, by the New York *Times*, the *Journal* and other media allied with the health work of the "Committee of One Hundred of National

Health," the Tuberculosis Association, and committees and other organizations. These and other facts, and the mass of detailed figures which they represent, show conclusively that human life is long or short precisely under the hygienic conditions under which it is lived, that human life can be prolonged as these hygienic conditions are improved, and that there is still enormous room for improvement.

A report which Dr. Fisher compiled for the Conservation Commission, based on data from American sources, shows that human life in America can be prolonged by the adoption of hygienic reform already known over one-third, or more than fifteen years.

Tuberculosis is known to be preventable. In Dr. Fisher's report it is entered as 75 per cent preventable; Typhoid, 85 per cent; Pneumonia, 45 per cent. Many diseases, such as cancer, are entered 0 per cent preventable, although the best expert would allow some degree of preventability, if prevention begins early enough in life. On these premises we find that about two years of the possible lengthening of the human life would be due to the elimination of preventable tuberculosis, 6 per cent a year would be due to the prevention of typhoid; ½ per cent a year to diphtheria; 9 per cent a year to the elimination of preventable accidents. At least eight years could be added to the average life by securing reasonably pure air, water, and milk. Applying what is actually known in hygiene, the death rate amongst insured people could be reduced nearly one-half during the decades, between thirty and sixty, about one-seventh during the next decade. According to this plan which the writer had in mind, life insurance money invested in saving life would not be in hospitals, but in the education of the public, and particularly their policy-holders, in health matters, and joining in every legitimate way to improve the public health offices and services in the municipalities, States, and Federal Government.

We need in North Carolina laws to back us, then competent men elected to fill the positions created, and they paid for

their services, not merely holding the position honorary, but with their shoulder to the wheel, earnest in their endeavor to make North Carolina the most healthful State in the Union, with vital statistics, on an accurate basis to prove it, in keeping with other civilized countries. Vital statistics are the very basis and foundation of any attempt to better the general health. Public hygiene is built on it, is controlled and directed by, and is everlastingly in debt to vital statistics, and to it belongs the might and the right to direct the future of preventive medicine. We need more medical legislators. There are golden opportunities for some of our medical talent of North Carolina to distinguish themselves by services of eminent value in our legislative halls. And, while he may not have an open reward, he will have a reward which is possibly unknown to him, but he will have, best of all, the pure joy of service well rendered. To do things that are worth doing—to be in the thick of it—Ah, that is to live!

I shall not attempt to suggest a number of new laws to be enforced, but urge that the laws we already have be carried out to the letter. I would like to make only a few suggestions along this line. There should be a State law requiring every case of tuberculosis to be promptly reported by the attending physician. Then the patient should receive treatment at a sanitarium if possible, and they should go as soon as a diagnosis is made, for every tuberculous patient is a source of danger to all who come in contact with them. Not only the open air treatment with rest and forced feeding; but the educational advantages will accomplish great good among the people, for they are taught to ward off and protect themselves and others against the disease. When they return to their homes they will impart the information gained to their families and neighbors and the result will be that the entire community will be benefited by it, and tuberculosis will be on the decrease instead of increase.

There should also be a law making it a misdemeanor for any parent or parents to allow any remediable deformity of

their children to go untreated. If the parents are not sensible enough to realize that it is for the child's future usefulness as a good citizen that it should have a healthy body, then the State should make them realize it by compelling them under penalty to give the child every chance for recovery. One mother when asked why she did not have her child's deformity attended to replied (this was a double club-foot in a little girl): "Well, God made her so and I will let her stay so." The poor, ignorant mother did not know it was a result of transgression of nature's laws.

There should be a law demanding that Medical Examiners be elected to the schools in North Carolina. Other States and many towns and cities have realized the importance of this and have seen good results from it. In the United States, Boston seems to be entitled to the credit of establishing the first regular system of Medical Inspection of Schools. This was done in 1894. Forty physicians were elected by the Board of Health to inspect the public schools of Boston. In 1895 nine such inspectors were appointed in Chicago. In 1894 the Board of Health of New York elected 134 Medical Inspectors for the public schools. In 1898 the Bureau of Health of Philadelphia passed a resolution directing that each of the fifteen Assistant Medical Inspectors should visit one public school in his district each day, inspecting it according to the methods employed in Boston, New York and Chicago.

Only four general State laws providing for or allowing medical inspection of schools have been passed. In Connecticut in 1899 the Legislature passed a law providing for the testing of eyesight in all the public schools of the State. New Jersey has a law authorizing the Board of Education to employ medical inspectors of schools and defining their duties. Vermont has a law since 1904, requiring an annual examination of eyes, ears and throats of school children. In 1906 Massachusetts passed a law which is comprehensive in its provisions, and mandatory throughout the State, the only man-

datory law of its kind in the country. It requires every town and city to establish and maintain a system of medical inspection by competent physicians for the detection of contagious diseases in the schools. Examinations must be made annually by the Inspector of all the pupils for physical defects, and their eyesight and hearing tested every year. There is, so far as can be ascertained, some form of medical inspection in vogue at present in seventy cities in the United States outside of Massachusetts. But the United States is still behind Germany, and a number of other foreign countries in this important movement.

The educated physician, let him specialize in whatsoever line he may, has it in his power to protect the families, and the people at large against contact with infectious and contagious diseases, and has it in his power to place those who may consult him on a sound and honest basis. Therefore, I believe for the good of the people that we should never have but one Medical Examining Board in North Carolina, and every man or woman who proposes to practice the art of healing, or curing the people, whether they be Homeopath, Osteopath, Eclectic, Christian Scientist, Allopath, they should be made by law to pass examinations showing that they are well grounded in the fundamental principles of medicine, anatomy, physiology, and pathology, before they are allowed to practice. For unto all come the ill and diseased, and they should know enough to diagnose the case before treating it. I hold that no man can diagnose and treat any case intelligently until he first knows the anatomy—second, the normal functions of the body—third, what pathological changes are to be looked for.

A law to compel all practitioners, no matter whether they give drugs or not, to pass examination showing that they possess knowledge of the fundamental branches would protect the people. Then the Osteopath would know enough to send a case of suppurative appendicitis to a surgeon, and not undertake to remove the cause by manipulation, and by so doing, in

all probability, rupture the mass and let the patient die of peritonitis, all because of his ignorance. Or the Christian Scientist who suggests to the poor anæmic, who is languid, has little strength for daily tasks, bad digestion, etc., that he is not sick, but that he only thinks so—it is all imagination—when if they were examined by an intelligent diagnostician would probably find early signs of tuberculosis. Then if he was honest he would warn his patient that this was the time to make the fight, and by so doing he would add years, if not a complete recovery to the patient, instead of chaining him by his deception to await a slow, loathsome disease that will number the patient among its many victims, slowly but surely.

There are signs of awakening in North Carolina which will crystallize with efficient organized efforts under State direction and control. This is shown in many ways too numerous for me to deal with in so short a time. Suffice it to mention two or three of the most important events in the line of progress.

The Legislature of 1909, this year, appropriated thirty thousand dollars for the permanent improvement of the State Sanitarium for Tuberculosis, and also increased the annual maintenance. This makes in all, given to this institution, in the neighborhood of $58,000.00. This institution is located at Montrose, Cumberland County, a most beautiful location for an institution of its kind.

This is a small beginning when we consider the great need, but shows progress in the right direction and will do great good to many who enter this institution for treatment. Besides the educational feature of this institution will accomplish untold good throughout the country.

The last Legislature appropriated a sufficient sum to secure the entire services of the Secretary to the State Board of Health, and require that he give his entire time to that office. The State Board of Health has elected to this position, as you are aware, Dr. W. S. Rankin, formerly dean of the Medical Department of Wake Forest College. In electing

Dr. Rankin as secretary, the board has not only honored Dr. Rankin, but they have likewise honored themselves, and I feel that Dr. Rankin will discharge the important duties of this office with fidelity, honor and credit to himself, as well as to the State.

The state and the medical profession of North Carolina owe a lasting debt of gratitude to our honored retiring secretary—Dr. R. H. Lewis, who filled faithfully this position for eighteen years, and retired at his own request. We feel grateful for his work and know that his most efficient services made it possible to secure the entire time of a secretary to the State Board of Health.

This is a very decided advance since it gives an active member to the Board of Health, making it possible for him to devote his entire time to this office.

I trust that the time is not far distant when each county in the State will realize the importance of having their County Superintendent of Health on a salary sufficient to justify him in devoting his entire time to that office. There is increased work for him to do with the increase in population. He could be kept busy improving the sanitary condition of the towns in his county, looking after the jails, and the schools, and he could easily be appointed the Medical Inspector of Schools in his respective county. The conservation of health promotes the conservation of wealth, and vice versa, therefore it would pay the county to do this from a commercial standpoint, to say nothing of the good done in the way of preventing disease and saving human life, and building up our country with strong, healthy men and women.

With our State organized in this way and the people educated, with other States acting in accord with us, a consummation which will necessarily come, we will soon have "A National Department of Public Health," all joining hand in hand—National, State, and County. This done we will soon have laws to back us, vital statistics accurate, and preventable diseases placed at a minimum, and more lives, more

homes, and more money saved, than by any other general agency in the whole plan of government. Think for a moment that during last year 1,500,000 persons died and 100,000 were sick, involving the comfort and material prosperity of 5,000,000 homes and 25,000,000 people, and that one-third of this was directly preventable. On account of inadequate authority for medical officers during the Spanish-American war, we lost sixteen of our soldiers from preventable disease to every one lost in battle. And 85 out of each 100 of them were inmates of hospitals during that short struggle from some character of disease. During the Russo-Japanese war, with medical officers having coequal authority and rank, except on field of battle, Japan lost but one of her men from sickness to every four killed in battle, and only fifteen of every one hundred of them ever saw the inside of a hospital. As an argument for peace, we are told, that two hundred and ten thousand men died as the result of battle in both armies during the Civil War. As an argument for health laws we are told, that seven hundred and fifty thousand people died of tuberculosis in the United States during the last four years, and that at least three quarters of a million are continuously sick of it.

For a moment think of the money annually expended by the Department of Agriculture, $40,000,000 in the last ten years, in investigation and extermination of fever in cattle, cholera in hogs, pests in cotton, corn, etc., and other profitable things of commercial value; then compare with the assistance we have received from our Legislature in this our unselfish warfare against pestilence affecting men, women, and children. We have been called a Medical Trust.—God forgive, and may such as think thus see us as we are—the noblest of all professions, poorest of all trades!

God direct and give us men of sound minds and healthy bodies who are earnest and *enthusiastic* over this great work. It has been said that enthusiasm is the motive force

of progress. No really great deeds were ever done in arts or arms, in literature or science, that was not the product of enthusiasm. It beckoned Columbus across the ocean; it struck fire from cold flint; it invented the alphabet; and it saw in the steam wreaths from a teakettle a force greater than that of all the men in the world united; it tunneled the Hudson; it took signals under the ocean; it carried messages through the air; and it harnessed lightning to carry the vehicles of man. It discovered the circulation of the blood; invented the ligature; it introduced vaccination and anesthesia; and it laid the gentle hand of healing on the wounds of humanity through antiseptic surgery.

It was with the three noble medical heroes who gave their lives to free a large section of the country from the annual dread of cholera and yellow fever, and made possible the building of the Panama Canal.

May we feel it! May we be animated by this immortal principle! May we be driven by this divine fire! And of our work, let us see to it that when the final summons comes, it can be said of us, "Greater love hath no man than this, that he lay down his life for his friends."

Dr. Parrott: *Mr. President*: It has been the pleasure of this Society to listen to a magnificent address. I feel, sir, that the body of the organization present agree with me when I say that our President "has made good."

I move that the address of the President be referred to a Committee to report on the same, and that this Committee be composed of the following:

Doctors Albert Anderson, J. T. J. Battle and A. A. Kent. Motion carried.

Upon motion of Dr. Kent, Dr. Parrott was also made a member of this Committee.

"A Further Report on the Pellegra Problem," Dr. E. J. Wood, Wilmington.

(Discussed as Follows):

Dr. R. H. Bellamy, Wilmington, N. C.: Dr. Wood has discussed this disease pretty thoroughly.

We have been working together for the past two weeks on the bacteriology of this disease and have isolated from five to six cases, with an organism identical with that of Tizzoni.

Dr. Osler procured for Dr. Wood, while in Rome, two slides of Tizzoni's organism. We are also inoculating guinea pigs and feeding them on corn meal, and we hope, in the next two or three months, to be able to report something definite to you.

Dr. W. S. Rankin: I desire to say a few words in regard to this subject—not so much to discuss the details of the paper, because I am not prepared for that, and I think the discussion of the details of this paper would be hardly necessary, as the ground has been very thoroughly covered by Dr. Wood.

I desire to say a few words in regard to this work in North Carolina. I think the character of the work done is almost unique. Most of the work of this kind, done in our day, is done in endowed hospitals and laboratories or by the United States Government. This work is being done by privates in our own ranks. These men are spending a great deal of time and money in this research work, and I hope that the profession of North Carolina will not wait for the profession of the other states to recognize this great work, before they recognize it.

I hope, in this one instance at least, the "prophets will not be without honor in their own country," and think we ought to recognize the importance of the work, and in recognizing it, gentlemen, I appeal to you in the name of public health, in the name of the ignorant dying by the hundreds every day, to stand by the men in this work and encourage them, that through your encouragement they may be stimulated to do a

work that will stimulate others to follow and work out this problem of pellagra here at home and give it to the world, so that the work of the North Carolina Medical Profession may take first rank in the line of scientific medicine. I know in general practice this Society stands first, but in this work special attention is not generally given by men in ordinary practice.

You can help these men a great deal by reporting your cases to them, by letting them know when you find a case of pellagra. Give them the vital statistics, so that they may have some knowledge of the prevalence of the disease in North Carolina.

Let us help them.

Dr. Crowell, of Charlotte: I think we are greatly indebted to Dr. Wood for this most excellent paper, and I am delighted to know—and I say "know" because he has given us such strong evidence that the etiological factor has been discovered, that we must accept his theory that this strepto-bacillus he has isolated is the cause of this disease.

I have had but little experience with this disease, though I have had some, and I have had the idea all the while since I have had any knowledge of this disease, that it was due to a specific germ and not a ptomaine—I might say—a result of eating faulty meal or corn, for the simple reason that the withdrawal of this species of food does not do away with the symptoms, and my idea has been that it was a disease analogous to that of syphilis and sleeping sickness. I could not get away from that idea, because you withdraw this species of food, and the disease continues.

Another thing: The symptoms are very analogous to those of syphilis, and because of that fact I have used, in the treatment, the specific for syphilis, and in one case, especially, I have gotten good results. I have used in a case that we all thought in Charlotte was a hopeless one, and that the patient necessarily must die, hypodermics of salicylate of mercury. When I first saw this patient she looked as though she could

not live many days, and until I gave her what we term the "cure treatment" in Vienna: six hypodermics of salicylate of mercury, one every five days, until she had taken six doses, she did not improve, but after this treatment she was able to take nourishment (before which time she was not), and she is now in fairly good health, going where she pleases and doing work in the home.

I report this case. There are other cases in our city I wish Dr. Allen was here to report. He has been doing some excellent work along this line.

Dr. Wood *closes.* I would like to say that in this work, which has been very actively pushed within the last few weeks, Dr. Bellamy, who was the pioneer in North Carolina, in the recognition of this disease, is working with me. Dr. Bellemay recognized pellagra long before it was heard from in a great many quarters where you are hearing the loudest sounds. In 1905 it was through Dr. Bellamy's courtesy that I had the opportunity of seeing four cases in one house, all of which were fatal.

We are making blood cultures of the different organs, the fæces and the urine, and we are making other experiments which we hope to report at a subsequent meeting.

I would like to say, during the past week there were reported and shown to us seventeen cases of pellagra, in New Hanover County—one of the smallest counties in the State—and we have reason to believe that there are hundreds of cases. In one family we found six cases, in another three, in another four, and we are more and more impressed with the importance of the probable infectious nature of the disease.

It was suggested last November, at the meeting of the College of Physicians in Philadelphia, that it is possible that the insane institutions throughout the country, and particularly the South, have become infected by patients who were admitted to these institutions suffering from pellagrous insanity.

We have every reason to believe that in the Raleigh institution (and the same is true of the Morganton institution), the corn is of a very high grade. I do not suppose that there is a better grade of corn in the State than that used by the patients at the Raleigh institution, and yet pellagra abounds there, and we know that many cases admitted to these institutions, with some form of insanity, develop pellagra after they have been there for some time.

I have in mind one patient who, for seven years had been insane, with no symptom of anything referable to pellagra. She was admitted to the Raleigh institution, and after—I think about a year—she developed a very definite case of pellagra.

Another thing of the greatest importance: We are, I think, prone to attribute to various drugs specific properties, in the treatment of this disease, without remembering that the disease is self-limiting, to a certain extent. It is as unfair to claim a specific for pellagra as for typhoid fever; they both seem to determine themselves whether they will recover or die. We have had so many specifics suggested: Peroxide of Hydrogen, the Mixed Treatment, etc., etc., and in all instances we found the disease to run its height, and between seasons subsided, only to reappear with the next season.

We are not prepared to suggest any remedy, not even the Atoxyl remedy. Since I wrote that paper we have had occasion to watch the Atoxyl remedy and arsenic, without any conviction of its great merit.

Dr. M. E. Robinson, of Goldsboro: I would like to ask Dr. Wood as to these cases that he reported from the families who ate corn?

Dr. Wood: I have been unable to find any family in my section, regardless of their station in life, who did not eat corn.

Dr. Robinson: My experience has been this: That the negro of this country used to live on corn-bread, and we had

no such disease as pellagra. I have not been so unfortunate as to meet a case.

We have been a corn-eating people, and now we are a cotton-raising people, and we buy our corn from the Western portion of the country. Their corn is unsound. They don't have the seasons we have. It is steam-heated and dried and sent to us. Now whether the disease is brought to us from that kind of corn or not, I do not know. Before the war this was a corn eating country and we raised our own corn, and pellagra was unknown. The preventive medicine would be the first thing for us to look into, and if that disease is brought to us through the corn, it would be a good idea for us to shut out Western corn and go to work and raise corn, and all of our country doctors around here I think it would be a blessing if they would unite their efforts to bring this about. We can not eat cotton, and we should go to work and raise healthy corn, so that we will not have this new disease.

I would like to ask Dr. Wood is this disease prevalent among the negroes? The negro is above eating corn now. It hurts his throat. The poor white people, however, eat some. Is it a disease that is preventable, by shutting out this Western corn? If it is, it would be a blessing to shut our doors to the Western corn.

"Surgical Diseases of the Kidney," Dr. J. Garland Sherrill, Louisville, Ky.

Dr. McBrayer, of Asheville, introducing Dr. Sherrill, said:

I desire to say that Dr. Sherrill is one of our North Carolina boys. His father was State Librarian for a number of years.

Dr. Sherrill has been connected for a long time, with surgery in the University of Kentucky, now the University of Louisville. The four schools of Louisville have combined, and Dr. Sherrill is professor of surgery in this institution.

I know you will all be glad to hear him, and that all the members are pleased to have him with us.

Dr. Lloyd Russell: *Mr. President*: While I am not competent to discuss the doctor's paper, I desire to say that I enjoyed it, and desire to thank him very much for reading it.

"Some Clinical Features of Tumors."

Dr. H. B. Weaver, Asheville: *Mr. President:* It would seem to me, sir, that as important a paper as this should not go undiscussed.

The question presented in that paper is a most serious one. It brings to our minds most forcibly the limitations of man in surgery. We once thought and hoped that on account of the great advances in surgery, and especially in American surgery, that all diseases denominated "surgical diseases,' were amenable to treatment; but since we have heard the statistics and the experience of the eminent gentleman from New York, we see almost, how hopeless it is. How helpless man is, in the face of the great monster, cancer, which is on the increase in the world, and especially in the United States. It brings to our minds a very solemn thought, that this disease must be set down as incurable. And why? From the fact that notwithstanding the great advance made in bacteriology, etc., in regard to other infectious and chronic diseases, we have found the cause, yet when we come to this disease we must confess our ignorance, our inability to find any micro-organism, or any special microbe or agent, specific in its nature, which is the cause of this disease; and I was a little surprised to hear of the end results of such eminent men. I thought that after three years this disease might be conquered, but from the refrain of the paper it seems that we still stand, in the face of this great disease, helpless and without any remedy.

So I have arisen merely to call attention to the great advances in the mortality of this disease, without any remedy, so far, and if surgery, with all the appliances and technique available in our country, is unable to cope with this formidable adversary, what shall we expect of medicine? And

again, we thank Dr. Eliot for his valuable paper, teeming with such array of facts and figures.

Dr. J. Garland Sherrill, Louisville, Ky.: *Mr. President*: I think Dr. Eliot has expressed the opinion of all surgeons doing breast surgery. The greatest mistake the profession has made is in teaching the laity to look for pain in the breast, as a symptom of cancer. We should teach the public that pain is not essential to a diagnosis of malignant disease of the breast.

Another point he stresses, that is, that the three-year limit should be set aside.

My experience is similar to his. I have felt encouraged when recurrence did not take place in from four to five years, and then have been chagrined to have a recurrence, usually in some other part of the body, rather than the site of the scar. The question is, is it a new focus or a focus which originally existed in the breast, at the time of the operation upon the other breast, but which was not recognized? It is possible that this involvement may have existed at the time of the original operation.

I think these two points ought to be emphasized very especially.

Another important point: That the operation done for any tumor of the breast should be done very soon after the tumor is recognized; and another point is that tumors of the breast are being seen at a very much younger age than was formerly the case. Formerly we saw them about the age of thirty-five; we now see them as young as fifteen years—malignant tumors of the breast—and therefore we should be on the lookout for this, even in young women.

As regards technique: I think no manipulation should be made until the axilla is cleaned out. The breast, when manipulated not at all, will save you many a recurrence, because the cells carry the poison—be it what it may—it will not be forced into the surrounding tissues and thereby produce a metastasis.

Dr. J. M. Parrott: I feel my inability to discuss a paper read by such a distinguished author, more particularly when I did not hear the paper. I am going to "do the clairvoyant act," however, and discuss this paper, anyway.

One thing I believe, I might say positively, in regard to tumors of the breast: That all tumors of the breast should be looked upon with suspicion and be removed immediately. I do not believe we will be able to reduce the mortality, so far as the results are concerned, until the general practitioner realizes the seriousness of what is, to him, apparently a benign tumor appearing in the breast.

I wish to say, in my judgment—limited and crude—that I think all tumors should be looked upon with suspicion and treated surgically as soon as practicable, after the tumor is recognized.

Dr. Whittington, of Asheville: I have had the pleasure of seeing Dr. Eliot's work at the Presbyterian Hospital a number of times, these last few years, and have enjoyed his paper very much, and I wish to ask for information: If all breast operations done by Dr. Eliot, so far as his knowledge goes, have had recurrences? I did not so understand him from the paper.

My friend, Dr. Weaver, takes the pessimistic view and seems to think Dr. Eliot conveyed the idea that all carcinomas of the breast returned, no matter when they were operated on, by whom, or how.

I must confess that I have been rather optimistic in the treatment of carcinoma for the last few years. I have in mind some cases of carcinoma that were removed over ten years ago and have not yet returned—although the eighteen years have not passed. Dr. Eliot had recurrences. A man or woman who had cancer in one part of the body, if cured, might have a cancer in another part of the body, independent of the original disease. I look upon all breast tumors with extreme suspicion in both sexes, and think they should be removed

as soon as possible, and I believe all carcinomas, in any part of the body, should be removed as soon as possible.

We have been taught—I believe it was in a decision of one of our great international cancer commissions—that carcinoma, in its original condition, was a local disease, and if excised entirely, would not recur. I am rather of that opinion, and I believe many times, when we have a supposed recurrence, it is a new development in an individual that had developed carcinoma at some other point, at some other time.

Dr. J. A. Reagan, Weaverville: There seems to be a difference, Mr. President, between the paper and Dr. Whittington. The paper indicates, it would seem, that the effects, or seeds of the cancer are still in the system and did not develop until late, and Dr. Whittington thinks it is a new development. There is a question between the two points.

Now, my opinion is, (I have had a long experience in the practice of medicine, as you all know) that where it develops itself, after no matter how many years, that it is the effect, lain latest in the system until that period, and then it develops itself.

I don't think there is any reason for Dr. Whittington's notion—I don't see why any person would be more liable to cancer because they had had one, than one who had never had it.

My opinion is that it has lain latent in the system until a period caused it to develop, and when that period arrived, it developed somewhere in the system.

Dr. Eliot *closes: Mr. President:* I wish to thank you and the members of the Society for listening to a rather prolonged paper. I warned Dr. Brown, but he said "never mind, two or three had not read their papers, and I might have their time," so I made it a little longer than it ought to have been.

First and foremost I am quite in accord with the principle that every tumor of the breast should be removed. I think that as soon as such a diagnosis is made by the patient, physician, or surgeon, whether it is accidentally discovered, or attention is directed to it by pain or discomfort, it should be promptly excised, irrespective of its character.

I have always advocated the excision of cancer of the breast en masse, the tumor and axilla, with the ———— muscles being removed with as little traction or pressure upon the growth proper as is possible.

So far as tardy recurrence is concerned, it is easy for one to yield to the temptation of calling it a fresh outbreak, provided that five years or more have elapsed. Since the excision of the growth very late recurrences, say after 10 or 15 years, indicate that a patient once operated upon for cancer may develop a second growth, and that, too, in some organ at a considerable distance from the original focus.

In regard to recurrence in general, I would say that I have had a number of cases of from five to ten years' standing that have not recurred, but I fully believe that if I wait until the ten-year limit has expired that a number of these patients will by that time have developed recurrence in some part of the body. However, that may be, I think the surgeon who has recurrences even after three years, has prolonged the patient's life. That is an important point to establish: those cases that recur in from three to eighteen years, as the case may be, have had their lives prolonged, and for that reason surgery has done a great deal for them; moreover, they die very much more easily than those without operation, and who, for many days before death, fill the house with an intolerable odor, which is not only intensely disagreeable to the patient, but to the entire family as well.

In these late recurrences that I have mentioned, there has been none of that frightful suppuration and necrosis which so often occur in inoperable cases of cancer of the breast.

Again, Mr. President, I thank you all for your courtesy and attention.

"Emotional Status in the Present Day Treatment of Nasal Diseases."

Dr. Whisnant, of Charlotte: *Mr. President and Gentlemen*: The doctor has covered a field which every practicing physician should give close attention. The spray habit is one that we ought to guard against. It is a very easy matter to spray a patient if he has a little hay fever, or acute coryza. It is a very easy matter to spray him if he has a mild sinusitis. 'Tis easy to spray and he goes home feeling good about it. In a few days he comes back and gives you the same old story; he isn't very much better, etc.

We get many sinus troubles that the doctor has beautifully gone over for us, and, as general practitioners, if we would look into the troubles a little more carefully we would save valuable time in the treatment of nasal troubles.

I find in my work many people come to me with headaches and neuralgias of all sorts, and upon examination I find trouble with the sinuses, ethmoidal as well as frontal; sinuses with pus so thick I have hardly been able to wash it out, after an opening has been made. Every doctor should use his mirror and look into that nasal cavity, and if he finds something that looks ugly, send him to a specialist. I have enjoyed the doctor's paper very much.

Dr. Whittington, of Asheville: *Mr. President*: I am like the Dutchman who went to the meeting—"I am so glad I iss here to-day."

I enjoyed the doctor's paper immensely, that part especially that refers to the spray habit.

I would like now for the doctor to go further and tell us about straightening the deflected septum, sawing off spurs, and he has referred to hypertrophied turbinates, and there are many other little things the physician is liable to get into a habit of doing, and I would like to know if there are not other habits as extensively carried on as the spray habit.

Dr. W. R. Kirk, Hendersonville: I enjoyed the doctor's paper very much, and agree with him thoroughly as regards the spray habit, and also the tendency to overdo the cautery. I think as much emphasis could be put upon that point of the paper as upon the spray habit.

After the introduction of the electric cautery, it seemed such a simple matter to cauterize the turbinate bones, when there was an obstruction of the nasal passages, seemed so easy to do, that I am satisfied a great many times it was done when it was not necessary, and those of us who do work along this special line have seen very many bad results from the extensive destruction of nasal mucous membrane.

We should not, of course, forget the physiological functions the nose has to perform, and we must be very guarded in the nasal tissues destroyed.

I heartily agree with the doctor in everything that he has said.

Dr. Roy *closes*: *Mr. President*: I thank the gentlemen for the discussion of this paper.

I want you to understand I was in no wise decrying proper operative measures for the nose, because very frequently proper operation in the nose will cure just such conditions as sprays are so frequently used for, and proper operation will frequently put the nose in good condition without any further treatment whatever.

In reference to straightening the septum, that is a broad subject, but my idea is, when it is interfering decidedly with the breathing space, that septum ought to be removed submucously, or the septum ought to be straightened.

My idea in bringing this about is to make physicians feel—the family physician—that he is very much interested in this class of work, and that where these cases are treated by the family physician, rather than by the specialist, that the two of us should work together, if we are to obtain the best results for our patients.

"Practical Suggestions on the Treatment of Hook-worm," Dr. C. W. Stiles, Washington, D. C.

(Discussed as Follows):

Dr. Julian, of Thomasville: *Mr. Chairman*: I am indeed sorry that I did not have the pleasure of hearing the address of Dr. Stiles.

I am just a little surprised that Dr. Stiles has gone back on castor oil, for I am sure a few years ago he advocated it and for that reason I administered it and I am still at it and have not had any untoward results.

I have had over one hundred cases of hook-worm and I have given thymol and followed it with castor oil in every instance and with good effect.

Thymol destroys hook-worms and prevents and removes the secondary troubles caused by this parasite. It is an anthelmintic and is destructive of pathogenic organisms. It is also analgesic, and lessens the sensibility of the sensory nerves. Thymol does more than to dislodge the parasite; it acts well to arrest fermentation and stimulates digestion. I do not believe that full medicinal doses should be often repeated, but to watch the effects of the drug closely and as soon as you have singing in the ears, deafness, constriction of the fauces, stop the drug. For the secondary troubles caused by this parasite I give thymol in one or two grain doses several times a day. I give it in these small doses after the full doses for its influence on fermentation and putrefaction, for it has a positive antiseptic property as well as an anthelmintic.

I suppose that I was the pioneer doctor in North Carolina in the study and treatment of this disease, and long before it was classified, I reported a condition or rather a parasitic condition caused by dirt eating. As early as 1890, I reported cases to our State Journal, found in the Thomasville Orphanage. At the Hot Springs meeting of our State Medical Society I told Dr. Stiles of this and requested Surgeon General Wyman to order Dr. Stiles to Thomasville to examine some

of my cases that I then had on hand. We saw a condition that Dr. Stiles did not report. We examined a girl about fourteen years of age who had hook-worms and had very large developed breasts, but had no hair in the arm-pits or on the pubis.

I would like Dr. Stiles to explain why, in his cases that he found an absence of breast development and in this case we found such extreme development.

I appreciate what Dr. Stiles is doing for our South-land and what help he is giving to the medical profession.

Dr. Wood, of Wilmington: I would like to ask Dr. Stiles something that may be irrelevant, but which is interesting some of us in the eastern part of the State: In taking our patients' histories, it is our rule to inquire about ground-itch, in regard to the disease, whether it follows the venous circulation, finally gets to the lungs, is expectorated and swallowed, or whether it is a mouth contamination from the children scratching their feet.

We are rather interested in our section in studying ground-itch. We have become skeptical as to whether or not these people have had hook-worm disease. Does the parasite live for several years in the intestinal tract?

Dr. Bellamy, of Wilmington: I would like to inquire of Dr. Stiles his experience in regard to this disease in the negro. Dr. Nicholson says he has never seen a case in the negro, but I have had two negroes in the last six months.

Dr. Phillips, of Tarboro: I would like to ask Dr. Stiles about the relation of hook-worm to the menstrual disorders of women.

I recall a case in which a girl of about nineteen had never menstruated at all, then had done so for a short period of time profusely, and this menorrhagia continued for a considerable period of time. After she had been treated for the hook-worm, her menstruations occurred regularly, and then, following the menstrual period, there developed various psy-

choses. I have always attributed the menorrhagia and the psychoses immediately following to the hook-worm.

I would like Dr. Stiles, in closing, to give us the benefit of his experience along this line.

Dr. J. M. Templeton, of Cary: *Mr. President:* While the questions are being asked, I would like to ask one. Dr. Stiles has stated among factory girls they have amenorrhea. That is a condition that sometimes occurs in college girls.

I would like to ask if, in his opinion, he has found it to obtain there? I ask that, because of the difference in the class.

Dr. Stiles *closes*: *Mr. President*: In reply to Dr. Julian's first question, that in my first article I had recommended castor oil. I recall very distinctly that paragraph on treatment. I began it about in this way: "I have had no personal experience with thymol, but authors recommend the following method * * * *" and then I mentioned both castor oil and salts, and I also mentioned Sandwith's recommendations regarding alcohol—that is, to give brandy after the thymol.

A few weeks after that article appeared, I was experimenting on dogs and found that the use of oil and alcohol in connection with thymol was very dangerous indeed, and since that time I have religiously warned against the use of oils and alcohol with thymol.

I think Dr. Julian is to be congratulated on not having had an accident, for I know of several fatalities that have followed the use of oil with thymol.

In regard to ground-itch: I am persuaded that about ninety per cent of cases of hook-worm disease have had ground itch, but I think we are going too far if we claim that hook-worm infection takes place in no other way. The more educated the patient, the more rarely do we find a clear history of ground-itch. With our poorer barefooted people, we usually have a history of ground-itch, but among educated people

it is more likely to be absent. Further, as Dr. Wood says, many cases of ground-itch occur where no hook-worm disease follows.

Now has it occurred to you that no one has really studied ground-itch as yet? At least that the disease "ground-itch" has never been studied as carefully as it should be. I know at least two different conditions which might begin with ground-itch; one is hook-worm disease, the other is Cochin China Diarrhea. Those two affections can be brought about experimentally through skin infections.

Again, in this region it is almost impossible to open a dog without finding hook-worms in it. Now is it not perhaps possible that hook-worms from the dog will cause ground-itch in man, although they do not come to maturity? I throw that out merely as a suggestion.

As for immunity: The general rule holds good in parasitology that the younger a person is, the more easy it is for infection to take place. Older people present a greater relative immunity to the parasites that wander through the tissues, but we may find the parasitic infection in very old people.

As for the frequency of hook-worm disease in the negro: Gentlemen, you have touched me on a tender spot. The negro (when compared with the white) is undoubtedly relatively immune to hook-worm disease; that is to say a given amount of infection seems to exert a less serious effect upon a negro than upon a white person. Hook-worm infection, from present statistics, appears to be more common in the negro than it is in the whites. The negro is therefore the great reservoir for hook-worm disease in the South. It would not be surprising if fifty to seventy-five per cent of the negro farm hands harbor the worms. Certainly through their unsanitary habits they are spreading hook-worms all over the South, and while the infection is common among them, it does not affect them as much as it does the whites.

In regard to menstruation: Among the cotton mill girls I find two types of menstrual disorders which are especially prevalent. One of these types I find not only among the spoolers, weavers and spinners in the cotton mill, but also in the knitting mill and in farm girls. This type of menstrual disturbance is especially prevalent; it is a delayed type. The girl may not menstruate, perhaps, until she is seventeen, or even twenty-two or twenty-five years old, then she may not menstruate more than once or twice a year; she may menstruate only in winter; she may menstruate once in five or six weeks. In every case of this kind which I have examined, covering a couple of hundred, they were cases of hookworm disease, and in cases which underwent treatment, the functions were restored by the treatment for hook-worm disease.

Now we find in the cotton mill girls a second type of disturbance—an accelerated menstruation and profuse flow. The girl will perhaps menstruate every three weeks and the flow will be longer than normal. I have studied over the cause, to some extent, but think the subject should be investigated by a gynecologist. My experience is this: We find this second type of disturbance in the girls who are working in vibrating buildings who do not take the time off at their menstrual period. I am urging all the cotton mill girls in the South now, with whom I come in contact, to take time off during the first or second day. I have discussed this subject with perhaps one hundred and fifty cotton mill men, as to whether or not twenty-three out of twenty-eight days should not constitute a cotton mill month among menstruating girls. Almost every one has supported this proposition. I feel that further observations are necessary, and made in a more systematic manner than I have had time for, but I am prepared to expect menstrual troubles in a girl who works standing in a vibrating building, and who attempts to work during her periods.

As to the absence of pubis hairs: I consider that one of the best points of differential diagnosis between hook-worm anemia and malarial anemia. Take a Southern girl of say twenty-five years of age; with a severe anemia of long standing with pain in the epigastric region; with delayed and irregular menstruation; and with a scant growth of hair in the axilla and on the pubis; and this case is almost certainly a case of hook-worm disease. In severe cases I find almost invariably that the breasts are undeveloped. Dr. Julian's case was a most unusual one. I have seen one or two similar cases since then.

In reply to the last question as to the young ladies' colleges: My work, you know, has not been among the wealthier class in the South. It has been almost exclusively among the tenant whites. I have not had an opportunity of examining the girls in colleges, but Dr. Harris, Secretary of the State Board of Health of Georgia, recently examined the girls in a college and found several cases of hook-worm disease. I found a number of cases among the medical students in Tulane University, and I have also seen a number of cases among hospital nurses, but personally I have had no experience in young ladies' colleges.

I think I have answered all of the questions that have been brought up.

"Shock," Dr. J. Vance McGougan, Fayetteville.

(Discussed as Follows):

Dr. Bahnson, of Winston-Salem: *Mr. President and Gentlemen:* I am sure the good people who arranged this program made a mistake in calling upon me to open the discussion upon this very important question.

The honest truth of it is that the more I see of this compound entity or condition called "shock," the less I know about it. It is full of contradictory and generally inexplicable symptoms, and I think any one who sees a great deal of it must, if he is honest, confess, as I do, that it is a subject about which you know less the more you see of it.

I would like to say this, and doubtless others of my age will make the same confession: If I knew half as much as I thought I did when I began the practice of medicine, I would be a most wonderfully successful and accomplished physician and surgeon. (Laughter.)

There are one or two little features that I would like to speak of, in the doctor's very exhaustive and very valuable paper, and I hope others will follow his example, and the example of Dr. Stafford, who spoke on the subject last year, and will go into the matter and describe these very difficult conditions.

In regard to the treatment of shock, which is, after all, the main point, we can not generalize except in a very few particulars. This is one of those conditions in which one can not tabulate experiences and write out statistics to any satisfactory degree, leaving out the very well acknowledged fact that while figures can not lie, liars can figure, the only safe and proper treatment for this condition of shock is absolutely the individualizing of each case and treating it upon its merits; and I think perhaps the most successful treatment of shock is a treatment which comes almost by intuition, rather than by experience or book knowledge. Each case, you may say, is a law to itself. A very slight injury sometimes brings about a very tremendous shock, and, on the contrary, a very horrible, mangling injury is often attended by a slight degree of shock; so that it is the individual you must treat and not the so-called condition.

The one thing of all others, the thing of utmost importance, is absolute quiet and rest, mental and physical. The pushing away of all crowding, curious onlookers. Keeping them absolutely away. Avoid a removal of any sort. The proper place to treat shock is where shock actually occurs, with a minimum of moving disturbance.

Very many cases, if left to themselves, just as in syncope, with the head lowered and with the mind and body at perfect

rest, the majority of cases, thank God, recover without treatment. Many recover in spite of treatment.

There is one medicine that the doctor did not speak of, although in speaking with him I think he has, like myself, been using it, but I see very little notice, in books or otherwise, of the efficacy of atropia for relieving the internal congestion, dilating the capillaries, warming up the skin, and I think that is perhaps the most important of the medicines.

Next, in mind, would come caffeine, a powerful and wonderful heart stimulant, without the spur of strychnia and digitalis.

So far as venous infusion or transfusion is concerned, on general principles I condemn it, but have no objection to the hypodermoclysis which the doctor recommends, because the absorption would be so gradual, the patient can oftentimes get over the shock before any damage is done, and I don't believe any damage would be done.

One thing I would like to speak of, the doctor mentions: that is the effects of shock, the hysterical and psychic neurotic effects which often follow shock and the remarkable character of these after effects can best be shown by a description of a case which I saw: A man standing on top of a flat car was carried under a trolley wire carrying 500 volts. He was knocked down, and lay on top of the car with every sign of profound shock. The only injury shown was a slight charring of the outside cuticle over the base of the nose and eyelids, where they had been closed. He recovered without anything except careful watching and warmth to the extremities and body. There was no injury to the head, or anything of that kind, but when he recovered he was speechless. He could not say a word, and it seems the more he tried, the less able he was to speak. He remained in that condition, never speaking, voluntarily or consciously, although once or twice he was heard to speak in his sleep, or when alone in his room, and I diagnosed the case as that of hysteria as a result of this shock.

That thing persisted, to make a long story short, for nearly fifteen months' time. Finally he was taken to Philadelphia and the case diagnosed as one of aphasia, and two or three of the learned men declared he must go through a kindergarten teaching to enable him to speak. One day they worked an hour to get him to whistle and to say "no." The next day they worked two hours and got him to whistle, but not to say "no." The next day he could do neither. So the doctors decided there was a little deformity in the turbinated bones, and they gave him ether. Under the influence of the ether he talked (there was nothing wrong with the nose.) It so happened that that night he fell into a cataleptic state with a spasmodic contraction of the larynx, breathing with extreme difficulty, and the little interne—he was little and green, as you will presently see—did not know what to do. He took up the first bottle, strong ammonia. That man got one whiff, and the next minute the little interne was lying across the room and the bottle went at the same time, and when he finally crawled out the poor fellow was saturated with ammonia and had to have somebody take off his clothes. In the meantime the patient had forgotten his Sunday School lessons, used strong language fluently, and has talked ever since. He was a little hoarse at first, but soon got over that.

Gentlemen, the all-healing "balm of Gilead," that makes the blind see, the lame to walk and the dumb to speak, has been discovered, and that man has had this balm of Gilead well applied through a successful suit for damages, so that the work of the interne and the ammonia was made very easy. (Applause.)

Dr. McCoy: *Mr. President*: I don't know whether the surgeons will let an ordinary practitioner discuss this thing, but one thing has been omitted, which should be mentioned, in my opinion; that is, the internal application of heat, applied to the pericardium and all the external surfaces of the body. I think that is as important as anything else.

Dr. Phillips: I desire to say that we have with us to-day

Doctors Lloid and Eliot, of New York, and inasmuch as this is in their line, I move that the privileges of the floor be extended these gentlemen. Motion carried.

Dr. W. H. H. Cobb: I would like to relate a case that was run over by a car. The lower third of the man's thigh, his knee and the upper third of his leg were mashed completely, and the man suffered terribly from shock. He was in such a delirious condition he did not react for three hours, and instead of getting better, he grew rapidly worse, with considerable hemorrhage from the crushed arteries, and seeing he didn't recover, and knowing delay meant death, and not wishing to keep the tourniquet on so long, we made a very unsatisfactory application of local anesthetics,—general anesthetics meant death, and further prolongation of the shock meant death, so we simply used a little cocaine, sprinkled on the parts and removed the limb at lower third of thigh, and made a flap the best we could. The man suffered with nausea, etc., for three days, which was incontrollable. Being a dry town, we had no alcoholic stimulant, so we gave him strychnine and morphine and normal salt solution. He was getting along very well when I left home.

Dr. McGougan *closes*: *Mr. Chairman*: I think, sir, the subject has been very thoroughly threshed out. I do not know of anything additional to add.

"Traumatic Neurosis," Dr. Samuel Lloid, New York, N. Y.

(Discussion as Follows):

Dr. J. M. Parrott: *Mr. President*: In discussing the exhaustive paper of Dr. Lloid, I shall, for the sake of convenience, adopt the nomenclature of the writer, "Traumatic Neurosis," as expressed in the title, meaning by that to include three types of this peculiar condition which present themselves to my mind when I am called to see a case of this sort.

First. I assume that the patient is really sick, I believe that the railroad surgeon who assumes that the paient is ma-

lingering, is doing the patient and the railroad a manifest injustice. The first duty of the railroad surgeon is to relieve the injured. The second duty is to the railroad. On that assumption I approach these cases, giving the patient the benefit of the doubt. Any other is dangerous.

The second class of these cases are the hysterics, and the third class are those that are really malingering.

It is exceedingly difficult in all these cases, to separate the various varieties, because once you find organic disturbance, the case is removed from the realm of psycho-traumatic neurosis. Oftentimes the patient will begin with an honest, genuine, real hysteria and that condition will continue. Oftentimes the patient begins as a pure malingerer, and because of the constant repetition of the lie to himself, it becomes a truth, so far as he is concerned. That class of cases, of course, are not to be treated with any other respect except the prospective damages which they may obtain from the railroad company.

Traumatic neurosis is one of the most difficult conditions to diagnose, and one of the most serious and difficult things to treat with which the railroad surgeon has to contend.

I hate to find a case of traumatic neurosis, and my suggestion (I never assume to advise) to the railroad company is that the case be settled as promptly as possible, because the panacea to which Dr. Bahnson referred in his discussion is the remedy par excellence, and I may say, as a general rule, traumatic neurosis—whatever that may be—is greatly benefitted by settling the case. It cures the hysteria by curing the constant thought, and removes the patient's anxiety and self study.

As to the treatment of these conditions, I am frank to say I can not treat them except by the use of the "panacea." The symptoms have to be met and combatted. The various disturbances have to be met. It is a question of endurance. They practically all get well, sooner or later, according to my observation, but just what to do with them is a problem I have

not been able to solve, satisfactory to myself. "Rest" treatment is probably the very best.

Dr Lloid *closes:* I think there is nothing more to say. Dr. Parrott follows up the suggestions in the paper very thoroughly indeed.

The only objection I have to the term "traumatic neurosis" is, it is a very sweet morsel in the mouth of any lawyer who gets hold of the case, and he has a great pleasure in proving to the jury that it is a condition which can not be explained, and the verdict, awarding damages, is rendered, and then there is an immediate recovery from all symptoms of the disease.

It seems to me that we ought to protect ourselves from that tendency of the legal profession and try and put these things in a different class, rather than speak of them as "traumatic neurosis."

"Tertian Infection," Dr. J. J. Phillips, Tarboro.

(Discussion as Follows):

Dr. J. M. Parrott: It is not my desire to impose upon the profession, but I want to discuss Dr. Phillips' paper. It is somewhat out of my line of work, at this time, but it is more or less interesting to every man living in the eastern part of the State and is a warning against the dangerous tendency of the profession.

Malaria is often a diagnostic scapegoat, but we should not "swing" too far in that direction.

Dr. Phillips' paper teaches us the importance of making a study of the patient. There is not a man here who would not diagnose those conditions he describes, without making a microscopical examination of the blood, gastro-intestinal disorders. These conditions are oftentimes complicated by malarial manifestations.

I can not agree with Dr. Phillips in his method of administering quinine, except, perhaps, for its local effect, because I do not believe that quinine, to any appreciable extent, is absorbed by the lower bowel. I would prefer, in these cases,

after being sure of my diagnosis, to administer quinine hypodermically, and in the treatment of these diseases I would of course keep in view the correction of the errors in diet, which usually accompany these cases, and attempt to relieve the condition by pursuing the dual treatment.

Dr. Albert Anderson: *Mr. President:* I do not arise to discuss Dr. Phillips' paper, but to express my gratification at hearing such a paper, also my gratification at hearing other papers from our young men, of such scientific value.

I have been especially impressed with a movement among our young men in doing some important scientific work, that we have never had before, and I think it is due to the young men that we should express to them our gratification and congratulation upon such good work.

The paper is of high scientific importance, and Dr. Phillips has investigated a subject that should have been investigated long ago. His step is well taken and he treats his subject in a very important light.

Dr. Cyrus Thompson: *Mr. President:* I don't know, sir, that I ought to say anything, but I am past fifty years old, and I have been in the habit of talking a good deal in my life, and as I have not talked any lately, I just feel as though I have to talk a little, to keep myself in the habit of speech.

("Your name?" says the President. "Thompson.")

I live in the county of Onslow, where ordinarily we have to go up against a vast deal of malaria, and in every variety of form. But in the last two or three years, in my particular locality, we have not had very much to do. I used to think that this (Asheville) climate was the healthiest place in the world, but I now know that I live in the healthiest place that God ever made. (Laughter.) It is so healthy that I can almost say, like a man did to a stranger coming to his town one day, "It is the healthiest place you ever saw. You just ought to move here. There has been but two deaths

in this town for ten years." The man said, "That is remarkable for a town of this size. Who were the two that died?" He said, "The doctor and the undertaker." "What did they die of?" "Starvation!" (Laughter.)

Mr friend, Dr. Lewis, (I don't see him here), has taught us about the mosquito, and in my country, if it rains a heavy rain once a week all through the season, we don't have many mosquitoes and not much malaria Our natural tendency is to die of starvation.

I want to thank Dr. Phillips for his paper. There is no sort of controversy about the truth of it, because he confirms his diagnosis by microscopic examination of the blood. I don't think there is anything remarkably new in it. I don't think that he brings forward anything that we ought not to have seen long ago. And that brings me to say that we are constantly walking over the graves of dead men, not knowing it, because we don't look down to the ground beneath our feet.

Every one knows in malarial manifestations we are liable to have all sorts of internal congestion. I remember, a few years ago, in a certain district every malarial patient complained of great nausea and vomiting, caused by the gastric congestion, and also of intense abdominal pain. The books will tell you of that, but it doesn't follow in every season.

I may say again that I have seen cases of intermittent malaria, every other day, in which a diarrhea came every other day. I ought, from that fact, to have had the sense to write the paper which was kept for Dr. Phillips to write—but somehow I didn't. (Laughter.) The truth of it, Mr. President, is that there is not much truth, or many truths, rather, in the world; and if I were a poet, like some of you, who only read and remember poetry that others write, instead of making it for myself sometimes, I would quote that little piece of Tennyson's about the little flower in the crannied wall; some of you remember it; that if you could compre-

hend the truth of it, you would comprehend all truth. Here it is:

"Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

But I must not get too poetic.

Dr. Phillips has called to our attention a very important condition. You have enlargement of the liver; you have enlargement of the spleen; you have congestion of the stomach; you have congestion of the intestine, this last manifested by intermittent diarrhea, all due to malarial poisoning. You may have seen it without much splenic and hepatic enlargement, and yet, with the intestinal congestion and the pouring off of the fluids as in the children who have come under his observation. There is no controversy about the fact. As to the treatment of it: In the treatment of chronic malaria (I don't know how he would give this to very young children) and low grades of malarial fever, there is nothing to be compared to Methylene Blue. Hare says it is especially valuable in the cases of children. It is just as serviceable in adults. Take the cases that come back every few weeks, just a nasty condition, which may break down at last in malarial hemoglobinuria. Put them on Methylene Blue, and let your quinine go to the four winds, and things will come out well. There is nothing else that breaks up this condition like continued doses of Methylene Blue. I make that suggestion to him in return for the suggestion he has given us.

Dr. Wood, of Wilmington: I ask if every one of you gentlemen do not concur in the periodical relapses Dr. Phillips refers to? My experience is the experience of my father, and the experience of that of all the older practitioners in the eastern part of the State,—that tertian malaria has a tendency to relapse on the seventh, fourteenth,

twenty-first, twenty-eighth or thirty-fifth day. I made that statement to an eminent physician several years ago, and he took me to task and referred me to some Italian literature to bear out his statement that there was no such periodicity, and I got the Italian literature and found it bore me out. I was impressed that in the literature on the subject this important point is not emphasized. It is almost impossible to get rid of this condition in Eastern North Carolina, until we observe the seventh, fourteenth, twenty-first, twenty-eighth and even thirty-fifth days. I have seen them go to the thirty-fifth day and have a chill.

I think the younger members of this Society ought to look into it, because it means a great deal to us. I know the students who come from the Northern institutions (having been one myself, I speak authoritatively), can not cure malaria as readily as they should. I had to find out from the older men how to do it. This secret is to anticipate the days by giving quinine just as though they were preparing for the third day in a tertian infection.

Another thing I would like to mention: the frequency of tertian parasites in the blood, without any febrile manifestations at all. I have watched a patient for three weeks, without giving quinine. The patient had parasites in the blood during this whole period, and then had a very definite chill. Later there developed in the blood of that patient quartan infection, and the tertian and quartan infection ran along together for a long time. We did not give quinine, because you all know, after giving it, there is no chance of finding a parasite. We finally gave quinine and the patient recovered for the time, but later relapsed.

That was the first case of tertian and quartan malaria ever reported here. The other cases were reported from Roumania.

Another thing we have very frequently in adults. I have in mind a case of Dr. Bellamy's. The patient had definite symptoms of peritonitis and it looked very much like an ab-

dominal operation would be necessary, but very soon saw there was a malarial complication, and the abundant use of quinine relieved the situation.

I think the use of quinine by inunction in children has been neglected, and I would like to refer you to an article in the *American Journal of Medical Science* of recent date on that subject.

Dr. Phillips closes: *Mr. President:* I very much appreciate the discussion that has taken place. It is very encouraging to us younger men.

I came across this matter largely through cases that had come to me from other physicians—not in my own section, however, but who had come into the district. The first patient, I remember, who came from the farther eastern part of the State, was having periodical diarrhœa, with recurrences from the seventh to the tenth day. The blood showed the tertian organism. It occurred to my mind at first that possibly malaria and diarrhea were co-incident and that the malarial organism happened to drop out just about the time I saw the case, namely, at the terminal end of one of the seizures.

The case was treated along customary lines. On the third day after apparent recovery the diarrhœa occurred again, and examining the blood on the third day I found the young tertian organism. The patient was put upon rectal injections of quinine and the whole thing cleared up. That put me to thinking, and almost every case of this nature that came to me, I examined the blood very thoroughly and gave, always, with most excellent results, the rectal injections of quinine. It grew upon me, without much observation, in case after case—I have had a great number of them—that this diarrhœa was a manifestation of tertian malaria, and that we had a type of it which could be promptly corrected and thoroughly met through anti-malarial means.

I do not agree with Dr. Parrott about the abandonment of

the rectal injection of quinine. I have treated numbers of cases in that way. The quinine is absorbed. I had one youngster in which the quinine rash was noticed on the third day, from rectal injection. The temperature subsides and the condition clears up under this procedure.

In regard to the relapses Dr. Wood refers to, it is one of the most important things to watch—the seventh to the tenth day, and so on; and one thing I wanted to bring out was the fact that we must look for these relapses in the blood. If a child begins to have one or two too frequent movements, if you will examine the blood you will find the young tertian organism, and that is the time to treat them with rectal injections of quinine. The line of treatment has been very helpful to me. I appreciate the interest the Society has taken in it and thank Dr. Thompson for his kind encouragement.

"Tuberculin in Diagnosis, with Especial Reference to Children," by Dr. R. A. Urquhart.

Dr. Kirk, of Hendersonville: *Mr. President:* The paper is very interesting, and especially so is the case where he got the reaction in a child who had been taking milk.

It is certainly a very interesting point to know if it was possible to have obtained the reaction on account of the milk being tubercular.

I would like to ask whether the milk was from a tuberculous animal; if it was, and it is possible to obtain a reaction from the bacilli in the body before it has formed a definite focus, it would perhaps explain the reaction.

If I understood the doctor, I think he said the child was not tuberculous; so I have offered this merely as an interesting conjecture. I think the Moro inunction is safest with children and equally as satisfactory as the ophthalmic test. There is very little danger in using the ophthalmic test. Always, before using it, you should examine the eye by oblique illumination for any ulceration or abrasion of the cornea.

If there are none, or if there is no inflammation of the conjunctiva, you can safely use one-half of one per cent solution pure tuberculin.

Dr. Stiles: *Mr. President:* I have, myself, been subjected to the Pirquet test, and have reacted very strongly. This occurred about eight months ago. Since that time I have had a permanent eruption on my left arm, near the site of the test, but the eruption has not occurred on any other part of my body.

I would like to inquire whether such cases are recorded by the various observers.

Dr. Richard A. Urquhart: In response to Dr. Stiles' question, I can say that peculiar eruptions have been reported. Just what the exact nature is I am unable to say.

It seems hardly probable that hypersusceptibility in the case referred to could have been caused by drinking tuberculous milk, as suggested by Dr. Kirk.

There is some evidence that the reaction can be brought out where for a long time the body has been acted upon by tubercle bacilli and where there seems no real formation of tubercles. Such reactions have been reported by von Behring in calves after protective inoculations. These reacted for months and no tubercles could be found. He also believes a reaction can be elicited in children from natural infection, before tubercle formation—at the beginning of lymphatic hyperplasia.

"Yamanouchi produced hypersensitiveness in young rabbits by injecting intraperitoneally serum from tuberculous subjects, but so far as I am aware this has not been generally done. I can not, however, conceive that such temporary contact as would occur in drinking infected milk could cause hypersensitiveness, there evidently being no tuberculous infection, as evidenced by the rapid disappearance of the sensitiveness. The case is certainly a very unusual one."

CONJOINT MEETING OF BOARD OF HEALTH WITH THE NORTH CAROLINA MEDICAL ASSOCIATION.

Meeting called to order by Dr. Thomas, of Wilmington, Chairman of the State Board of Health.

Dr. Thomas: This conjoint session marks a period in the history of the State Board of Health in North Carolina, which to us is very significant. It is the end of the service of Dr. R. H. Lewis, for so long the efficient Secretary.

Following Dr. Wood, the pioneer of sanitation in North Carolina, he took up the work with zeal and enthusiasm, which he has guided and carried on by his wonderful judgment to its present high state. To Dr. Lewis belongs the spread of sanitary knowledge in the State of North Carolina, and the present influence of the Board of Health in the commonwealth.

All of you are aware that these steps toward the commanding position it now holds have been slow and faltering, but the State at large has come to realize the fact that the State Board of Health has done good work for it, and its recognition, I think, is thoroughly voiced in the action of the late Legislature, in largely increasing the fund for its support, at the suggestion of your Secretary, Dr. Lewis—which is the prime evidence of the confidence which has followed his work, which is as well based upon the character of the man. He has gained not only our confidence and respect, but that of the gentlemen who represent the different constituencies throughout the State.

I say, then, when this good man feels he must lay down this work—not because he is feeble or infirm; I assure you of the contrary—it is because he can not relinquish his active professional work to take up the work of the State Board of Health exclusively.

It is a time to feel grateful for the work he has done for the State and for the medical profession. (Applause.)

Report of the Secretary read by Dr. Lewis.

REPORT OF THE SECRETARY STATE BOARD OF HEALTH.

DR. R. H. LEWIS, RALEIGH.

May 20th, 1908—June 11th, 1909.

Your Secretary, in this, his last report, is much gratified at being able to say that his last year of service has witnessed the greatest advance of the cause of preventive medicine in our State, in a like period of time, since the establishment of the State Board of Health. For several years he has realized that, owing to the exactions of his private professional work, the time he could give to the work of the Board was entirely inadequate. He believed also that, owing to the very small salary allowed the secretary, on account of the meager appropriation, no one else could be expected to give more attention to it and make a proper living, and so he waited before taking action until, in his judgment, the outlook was favorable for an attempt at a forward movement. Upon the assembling of the last Legislature the conditions, in his opinion justified making a trial for better things. Consequently, having found a man who he believed to be well qualified for the position, and having obtained from him a positive promise to accept an election, if tendered him by the Board, your Secretary prepared a bill, which, while incidentally legislating himself out of office, as he could not afford to abandon his private practice, would provide the means for work far in advance of anything theretofore attempted for the public health. The essential feature of the bill was an increase of the annual appropriation from two to ten thousand dollars, authorizing the payment to the Secretary of a salary of three thousand dollars a year, and requiring him to give his entire time to public health work. While the Legislature cut down the appropriation asked for to six thousand dollars, it still left an increase of 200 per cent, and a sum sufficient to secure all the time of a competent secretary, the one thing absolutely essential to any marked progress.

As you already know, the present incumbent, at a call meeting on March 30th last, tendered his resignation, which was accepted, to take effect July 1st, and Dr. Watson S. Rankin, Dean of the Medical School at Wake Forest College, was unanimously elected as his successor.

The public health laws were also materially and advantageously amended in many other respects, particularly those sections relating to the control of public water supplies by the Board of Health, in the preparation of which latter amendments invaluable aid was rendered by the Engineer of the Board, Col. J. L. Ludlow.

Section 3057 of the Revisal of 1905, relating to the State Laboratory

of Hygiene, was amended by specifically requiring analyses of drinking waters sold in bottles or other packages and imposing upon those selling them an annual tax, graduated in proportion to the gross receipts from sales. While the original act imposed an annual tax of $64.00 upon all individuals, firms and corporations selling water to the people, it was found, upon investigation, that in many instances this was out of proportion to the business done and it was deemed both right and wise to make the tax equitable and at the same time to make it perfectly clear that bottled waters came within the law. The necessity for analysis of this class of waters was startlingly shown by analyses your Secretary had made in the laboratory in the general cause of the public health and for the purpose of supplying ammunition with which to meet an attack upon the law, threatened by the president of one of the companies selling a water of this class. Of sixty-one samples from twenty-nine springs thirty-two were found to be infected wth colon bacilli. Although the gentleman referred to passed away before the General Assembly met, the information thus obtained was of service in securing the desired legislation. The section was further amended so as to require analyses of the waters of springs "maintained and treated as an adjunct to any hotel, park or resort for the accommodation or entertainment of the public," and an annual tax of $15.00 was imposed upon all such sources of water supply, with an additional tax on all waters sold therefrom in bottles, in accordance with the schedule referred to above.

Probably the weakest spot in our sanitary legislation has been the lack of reliable vital statistics. The only statistics we have had heretofore have been those collected by some twenty-odd cities and towns in various and manifestly, in some instances, very imperfect ways, and incomplete and inaccurate vital statistics are practically worthless. A model vital statistics bill for states was sent us by both the Bureau of the Census and by the American Medical Association. Theoretically it was an excellent bill and for densely populated, highly organized communities, doubtless practicable, but for our State, with its large, widely scattered rural population, and one-third of that negroes, it would have been little short of absurd. After a very careful consideration of the subject it was decided that any attempt at the collection of reliable vital statistics holding out the least hope of success, for the present at least, would have to be limited to incorporated towns. So, desiring that our statistics might fit in with those of the United States Census Bureau, a request was made of Dr. Cressy L. Wilbur, Chief Statistician, to have prepared for us a bill applying only to cities and towns of one thousand population and over. Taking the bill he kindly and properly sent as a basis, it was modified to fit our conditions. After its passage in its completed state it was very gratifying to learn from Dr. Wilbur that it was the first practical vital statistics law to be enacted in the South and, moreover, that it contained a provision for its

enforcement new to him and in his opinion valuable. This provision was placing the responsibility for carrying out the law solely upon the Mayor and making him liable to a fine of not less than $10.00 for failure of duty in this respect; and at the same time making it mandatory upon the solicitor to institute a criminal action for its collection upon complaint of the State Registrar or Secretary of the State Board of Health. It really looks now as if vital statistics of real value, though necessarily partial, were in sight.

The high price of diphtheria antitoxin being prohibitory to the poor, the propriety of making provision for its supply free to indigent cases of the disease should not be questioned by any humane person. The suggestion of the advisability of such legislation came from Dr. B. E. Reeves, of Alleghany County, in a letter, accompanied by a tentative bill, to Senator R. L. Doughton, of the same county. The suggestion was cordially received and at his request Dr. Reeves's bill was modified and amplified into the law as we now have it.

Another forward step was the increase in the annual appropriation for the support of the State Sanatorium for Tuberculosis, from $5,000 to $7,500 and the appropriation of $30,000 for improvements. This institution, which is ideally located, was opened for patients in November last and promises to be of much value in the campaign against tuberculosis.

The most gratifying and encouraging thing in connection with the health legislation by the late General Assembly is that, with the exception of the cutting down of the appropriation of ten thousand dollars asked for to six and an immaterial amendment to the bill relating to the Laboratory of Hygiene, requiring reciprocity in the matter of analyses of bottled waters with other States having similar laboratories and requirements, all the bills relating to the public health in any way were passed without amendment and without a single vote in the negative. This signifies a remarkable growth in favorable public opinion and justifies the hope of more rapid progress in the near future.

As this report is made to the Conjoint Session of the Board of Health with the Medical Society, and as nothing is of more importance to the public health than well-qualified physicians, reference to the strictly medical legislation is in order.

A bill, prepared by the Board of Medical Examiners, the essential feature of which was the requirement of a preliminary education equal to the graduation from a high school of all applicants for license, was introduced in the House by one of its most influential members. The requirement was certainly a most reasonable one and, as a matter of fact, of special value to the prospective student of medicine, but it was bitterly fought with the usual demagogic arguments of "Medical Trust" "poor boy," etc., and, after three hot contests, was finally defeated by one majority.

The amendment to the license law authorizing the Board of Exam-

iners, in its discretion, to modify the requirements of the law and to grant a limited license, when the conditions in the neighborhood from which the applicant came demanded it, met with no opposition. Special acts licensing certain physicians had been introduced and the indications were that they would be passed. To prevent this kind of legislation, which would mean in the end the practical destruction of our license law, this amendment was suggested as a compromise and accepted by the introducers of the bills. This action on the part of those having the matter in charge has been criticised in some quarters, but it should be said that a copy of the amendment was sent to every member of the Committee on Legislation and of the Board of Medical Examiners and was approved or assented to by all, with the exception of a single member of the Board of Medical Examiners. Those on the ground and familiar with the conditions as they actually existed in the Legislature felt no doubt whatever as to its wisdom.

Before leaving the subject of legislation acknowledgement should be made of the valuable assistance rendered by Dr. Albert Anderson of the Committee.

The Laboratory of Hygiene is proving of greater and greater value to the people and to the medical profession as time passes. The profession is showing increasing interest and appreciation and seems to be well satisfied with the work done therein as not a word of criticism of either methods or results has come to the office of the Secretary.

The amount of work accomplished by Dr. Shore, the Director, and his two assistants, Miss Allen, Chemist, and Mr. Kellogg, Biologist, when compared with that of some other laboratories is, to say the least, unusual. A perusal of the report of the Director, which is appended hereto, will show this. Twenty-three hundred and eighty-two examinations of specimens of various kinds and the administration of the Pasteur treatment to eighty-three cases in addition, in one year by so small a force is most gratifying. This could not have been done but for the kindness of the U. S. Hygienic Laboratory in furnishing us the virus free of charge. Not a case has died and our record, so far, could not be bettered.

In January last the Laboratory was moved to very commodious quarters, it has been thoroughly furnished with the most approved apparatus, and manned by a force as good as any, and we can confidently expect its increasing usefulness.

After nearly seventeen years of active and loving service your secretary, lays down the work with regret, although he realizes that it is best for the work's sake as well as for his own. He is conscious of many things left undone that ought to have been done and perhaps some things have been done that ought not to have been done, but he has tried to be of some service to the State.

In conclusion, he wishes to express his deep and heartfelt appreciation of the unfailing and unvarying kindness and courtesy he has received at

your hands and to most cordially commend to you his successor, Dr. Rankin. Dr. Rankin, he believes to be a man of character, ability, energy, enthusiasm and possessed of the altruistic spirit so helpful in work of this kind. If the profession in the State will hold up his hands and give him their cordial support and cooperation he will do great things in the coming years for North Carolina.

SMALLPOX REPORT.

Counties.	Number of Cases.			Number of Deaths.		
	White.	Colored.	Total.	White.	Colored.	Total.
Anson	6	10	16			
Ashe	15		15			
Bertie	1	5	6		1	1
Bladen		7	7			
Buncombe		1	1			
Cabarrus	1		1			
Caldwell	106		106			
Camden	15	80	95			
Carteret	1		1			
Catawba	3		3			
Cherokee	1		1			
Chowan	12	12	24			
Craven	2	14	16			
Currituck	85	60	145	1		1
Duplin	25	110	135	1		1
Edgecombe		1	1			
Forsyth	23	14	37			
Guilford		1	1			
Harnett	16	7	23			
Johnston	44	41	85			
Jones	40	6	46			
Lee	13	31	44			
McDowell		5	5		1	1
Madison	5		5			
Mitchell	16	9	25			
Nash	8	5	13			
New Hanover	5	2	7			
Onslow		9	9			
Pasquotank	65	40	105			
Perquimans		28				
Pitt		3	3			
Polk		3	3			
Richmond		2	2			
Rowan		3	3			
Rutherford	17		17			
Sampson	9	28	37			
Scotland	24	2	26			
Wake		2	2			
Warren		8	8			
Watauga	15		15	1		
Wilson		1	1			
Yancey	1	3	4			
Total in 42 counties	574	553	1127	3	2	5
Death rate per cent				.05	.03	.04

Moved and seconded by several that Secretary's report be adopted. Motion carried.

Brief report of work done in the State Laboratory read by the Secretary.

REPORT OF EXAMINATIONS MADE IN THE STATE LABORATORY OF HYGIENE, FROM MAY 20, 1908—MAY 20, 1909.

		Positive.	Negative.
143	Examinations of fæces.		
	Hook worm	65	50
	Oxyuris vermicularis	1	..
	Ascaris lumbricoides	2	..
	Amœba coli	2	1
	Fly larvæ	3	..
	Tænia saginata	1	..
	Tubercle bacilli	2	9
	Blood	4	2
	Cancer cells	..	1
267	Examinations of sputum for tubercle bacilli	108	159
271	Examinations for diphtheria bacilli	169	102
43	Examinations for malaria	9	34
135	Examinations for widal reaction	56	79
18	Examinations for gonococci	7	11
65	Examinations for rabies	47	18
2	Examinations, bacterial, of pus	..	..
6	Differential leucocyte counts	..	..
122	Specimens of urine, with a variety of bacterial and chemical determinations	..	..
74	Examinations of pathological tissue as follows:		
	Carcinoma		15
	Chronic inflammation		19
	Benign hypertrophies		14
	Sarcoma		6
	Chondroma		1
	Colloid goitre		2
	Tuberculosis		10
	Pyæmia		2
	Verruca		1
	Necrosis		1
	Doubtful (tissues not well preserved)		1
	Placenta		2
2	Examinations of gastric fluid.		
1234	Examinations of water.		
2382			

Eighty-three patients received Pasteur treatment at this Laboratory. Of these 65 were bitten by dogs in which the disease was demonstrated either by microscopic examination, inoculation experiments in the laboratory, or by subsequent death of other animals from a bite; in 17 cases, only a clinical history of rabies in the attacking animal was obtained; in

one case the history was found to be erroneous and treatment was discontinued. 13 of these cases paid for treatment and the remaining 70 were given free treatment. C. A. SHORE, *Director.*

DR. ALBERT ANDERSON: As a member of the State Medical Society, I think some expression of appreciation ought to be said at this time of Dr. Lewis's work as Secretary of the State Board of Health, and I am very sorry that I am not prepared to speak as the subject demands, for what I will say will be from my heart, and what I can remember of his work, and not extensively said.

I would be untrue to myself and untrue to the Medical Society, not to say that the North Carolina State Medical Society fully appreciates and loves Dr. Lewis for the great work he has done as Secretary of the Board.

I am old enough to remember the work of his predecessor, and remember when he took charge of this work as Secretary of the State Board.

Dr. Lewis went into it with intelligence, with love, and with enthusiasm. I have been somewhat in touch with his work from the beginning. I know how wisely he has planned and how enthusiastically he has executed his work in every advanced movement. I know, in the first years of his service, that he planned for large things, and for the universal good of the people.

I had the honor to be appointed to take instruction in the Government Laboratory, to do some water analysis, many years ago, at his suggestion, and while my service was small and insignificant, it started the work that has been more intelligently and wisely done since I quit.

In connection with Dr. Pate, we tried to render the best service that we could, as beginners, and after we stopped, the work was taken up by the State Laboratory and carried on by better trained men. Finally the State Board of Health, through Dr. Lewis, secured Dr. Shore, who stands, I suppose, equal to any man in his work, by long training and intelligent service that he is now rendering to the State.

The prospect for State preventive medicine is good, and the State of North Carolina—not only the Medical Society—will ever owe Dr. Lewis a debt of gratitude. He has made history that will never be forgotten, and I feel that it would be unjust to ourselves not to say that we appreciate his services and will always love him for what he has done in the spread of hygiene and preventive medicine for the State.

Dr. F. R. Harris, Henderson: I desire to say what I can, in reference to Dr. Lewis. I am not a speaker, but I have a great deal in my heart to say. I say this, because I think preventive medicine in the State is the most important field, as I see it to-day, and I want to endorse what Dr. Anderson says, and, furthermore, to endorse Dr. Shore.

We had an outbreak of diphtheria last season, and I had occasion to send many specimens to him, and I want to say that the reports that Dr. Shore made were in accord with the clinical picture, and I believe they were correct, and he has my confidence, and I desire to commend him for his work.

Dr. J. T. J. Battle: I am one of a committee of three, appointed to draft suitable resolutions to express, in some slight degree, the high esteem in which the Society holds Dr. Lewis, and for the great work he has done for the Society and the State.

The Chairman asked all who were in favor of the above to signify it by rising vote, and the motion was unanimously carried.

Dr. W. S. Rankin: *Mr. President:* If I may interrupt for just a word: I feel it is a little out of place for me to express myself here, and I am absolutely unable to express my admiration for Dr. Lewis's able work in North Carolina. I think that the spirit that has governed and directed this work is the true altruistic spirit, and I feel that Dr. Lewis is a greater man than we North Carolinians recognize. I know that the public health workers of the United States look upon Dr. Lewis as one of the greatest authorities; as

one of the originators of public health movements. My slight acquaintance with these men has convinced me of that fact. I know that Dr. Lewis is a national figure in hygiene (applause), and he has not received the appreciation at home that he has received abroad.

In taking up his work, the highest ambition that I can cherish is that I may wear the cloak that he lets fall half as well as he has worn it. (Applause.)

Dr. Stiles, being asked by the Chairman for remarks, said:

First of all I would like to endorse this resolution offered in regard to Dr. Lewis, but I have a delicacy in speaking, as I am an outsider.

I endorse, however, the regret the physicians of this State feel in having Dr. Lewis retire, and this is seconded all over the country. I have heard many expressions of regret that he was going to give up the office of Secretary. It is generally recognized, however, that he has selected a good man as his successor.

To turn to another subject that I was discussing with Dr. Lewis, just before the meeting came to order: it was understood that several gentlemen were going to speak on sanitary matters, and I suggested that when they spoke they might take up the question of the sanitary privy, so necessary in this State.

I think perhaps, Mr. President, what I have to say on that subject would come in better after these gentlemen have read their papers, and I therefore ask that you let me present later what I have to say, after these papers have been read.

Dr. Lewis: *Mr. President:* I would like to announce that there will be a meeting of the Board of Health in room 123 at a quarter to three o'clock, for the purpose of finishing up certain work not attended to on yesterday. There will also be a meeting of County Superintendents of Health in

the tea room at 3:30, to meet for the purpose of forming a State organization. I hope the gentlemen will come, so that we may have a quorum.

I desire to say that we have had one hundred and one cases of persons that have been bitten by rabid dogs since June last, and we have secured from persons who were able to pay $831.40—the fifty dollar fee—for the support of the laboratory.

The Board of Health then adjourned until a quarter to three o'clock.

Wednesday Afternoon.

At the opening of the Wednesday afternoon session considerable discussion was had upon the latter portion of the by-laws, sec. 7, chap. 4, adopted at the Hot Springs meeting: "* * * With these ends in view, five years after the adoption of these by-laws, except by unanimous consent of the Committee on Scientific Work, no further papers shall be placed upon the annual program or be heard in the Association, which have not first been read in the County Society of which the reader, at the time, is a member."

The Secretary stated that although the matter was touched upon at the last annual meeting, and a committee appointed to advise concerning the same, he had had no instruction in regard thereto; but if it was the pleasure of the Society to act upon it next year, he would be pleased to do his part.

Dr. Rankin, who was one of the committee appointed to look into this matter at the 1908 meeting, apologized for neglect of duty and stated that he would give his endorsement to have the by-law put in operation next year; it was a law that had helped to organize the State Society and the county societies, and, at the same time, it tended to eliminate certain papers which the Society did not care to hear read.

The President stated that in selecting the chairmen for the different sections for this meeting, he had instructed them

to secure the papers under their sections, which papers were limited to six or eight; that the papers were so placed upon the program and the miscellaneous papers given second place.

Dr. Wood, of Wilmington, thought it would be a good plan to abolish the sections and the chairmen of the same, and let all the papers be thrown in together and read in mathematical order; or, again, it would perhaps be a good plan to submit every paper to some section and let it be passed on by the chairman or by the Board of Censors, and let *them* select the papers calculated to do the most good to the greatest number; that in his judgment it was a great deal better to disappoint the writer of a paper before coming to the annual meeting than to subject him to the expense of coming and the humiliation, after he got there, of not being able to read his paper.

Dr. Brown moved that the Society support the original law—that the papers come through the county societies—which was seconded by several. Dr. Templeton, however, thought such a motion superfluous; that there was no question as to what should be done in the matter, the law was expressed, the only question being as to whether it should be enforced.

Dr. Phillips, of Tarboro, stated that if the papers had first to be read before the county societies that it would work a very great hardship upon the members of some of the weaker societies, as some did not meet more than once or twice a year, and it was impossible to have any scientific feature to them when this was the case; consequently, if the papers had first to be read before the county societies, there would never be a paper read from Edgecombe, for instance, nor from many other county societies.

Dr. Rankin, by request, read further from the by-laws:

"If there is no county medical society, that paper must be endorsed by the Scientific Committee of the North Carolina Medical Society."

The President stated that the State Society was in the

embryonic stage still, and, although it had done a great deal, still there was much yet to do; what everybody wanted was the best thing for the Society, and suggested that the affair be looked into carefully; if the Society desired him to call a meeting of the House of Delegates to consider the matter he would do so.

Dr. Templeton thought that this particular by-law should be considered in time for the 1910 meeting, and Dr. Parrott, of Kinston, desired to know who it was that was going to consider it; if it was an amendment to the by-laws, the House of Delegates could not consider it; he therefore suggested that the attention of the Secretary "be called to this particular clause of the Constitution, and requested to see that this was enforced at the next meeting," and that he and the Committee on Scientific Work could conduct themselves accordingly.

Dr. Templeton then moved—and was seconded by Dr. Parrott—that the Secretary and chairmen of the different sections take this matter under consideration for the 1910 work, and that all put their shoulders to the wheel and try to bring about the best good to the Society; which motion was unanimously carried.

"The Influence of Pathology on Materia Medica and Therapeutics," by Dr. W. S. Rankin, Wake Forest.

Dr. Wood, of Wilmington: *Mr. President:* I would like to thank Dr. Rankin personally for this paper. It is so nearly in accordance with the things we see every day that I think if we read that paper every day of our lives we would all be very much better for it, and I think if we follow some of the advice contained in that paper there will not be so much of this everlasting doctor changing.

"Hæmaturia," by Dr. A. J. Crowell, Charlotte.

Dr. Reagan, Weaverville: *Mr. Chairman:* The paper is very extensive and the cases that he named so numerous that a discussion would require several hours.

There is but one feature, first, that I feel particularly interested in—hypertrophy of the prostate gland. It is known to many of the physicians here that I suffered that operation over a year ago. Dr. Brown performed the operation.

Some several years ago I commenced using soft catheters. Had to use them smaller and smaller, until they became so small I saw it wouldn't do to put it off any longer, and, though my age was eighty-four, I knew there was no other chance, and I was as calm in that operation as I am now—and you see how steady my hand is. I am eighty-five now. I can hold my hand up that way, without any movement at all, and the steadiness of my nerves and my calmness was the cause, I think, of my standing the operation and the success attending it; so I feel under obligations to Dr. Brown for performing the operation.

Dr. Parks M. King, Charlotte: *Mr. President:* I wish to congratulate Dr. Crowell on reporting the fact that he has had so few deaths.

Dr. Crowell closes: *Mr. President:* I have nothing further to say. I was in hopes my paper would excite some discussion. Every physician has cases of hæmaturia.

"A Plea for the State to Educate the Public in Infectious Diseases," by Dr. W. P. Holt, Duke.

Dr. Reagan: *Mr. President:* I think that is a paper that is of interest to all of us. I have had a long experience in some things connected with medicine, and I am satisfied that there is much ignorance in regard to what diseases will spread and the manner of their spreading; and while the State has taken it in hand, so far as scarlet fever is concerned, whooping-cough, measles, and some other things, there is as much danger in some things that have not been brought in as there is in those things.

Take, for instance, consumption. As you know, until recently it was thought to be a non-infectious disease, but I

have a case that I will report that is enough to satisfy any one of its infectious character.

There was a gentleman in one of the Northwestern States who had been a long time making speeches, of one kind and another, and wore himself down, and his physicians examined him and told him there was nothing the matter with him, only he was just worn down, and that man was advised to go to the Colorado Springs. He went there, and there was consumption in nearly all of the boarding houses and hotels. He was examined, when he got there, by the head physician, and told there was no symptom of consumption about him at all, that he was only worn down. He became intimate with that physician, and with the others there, and they all told him that he was free from anything of that kind. He stayed three months, but the last day he stayed there the head man told him he saw some bugs in the sputum, and the next day he went home. Some days after he got home, in going down the street he fell, and the blood gushed from his mouth and as soon as he was able he came to this place. When he came here, he came to my house, with the desire that I find some place for him to board. The negro driving him got lost and he didn't get here until after dark. I took him and concluded that I would keep him. He stayed here for about thirteen months, and I treated him. I told him, "So far as my judgment goes, your lungs are perfectly sound." I advised him to come to the sanitariums at Asheville—at that time Dr. Battle had one, and Dr. Von Ruck had another. He went to Dr. Battle for examination, and I told him not to tell Dr. Battle or any one else that I knew anything about the case, so he could get a better examination. The result of it was that he got an examination. Dr. Battle said, "Your lungs are as sound as mine." He then went to Von Ruck, and I saw Von Ruck myself, afterwards, and he said there was nothing the matter with him; and he never did have any sign of consumption again. This climate and proper treatment has cured many cases.

So, so far as the country is concerned, whooping-cough, etc., is known to be contagious, but there are other cases that it does not know are contagious; but I believe the country now recognizes the fact that consumption is infectious, and is one of our infectious diseases.

Wednesday Evening, June 16th.

Convention called to order by the President, Dr. J. F. Highsmith.

Report of Chairman of Obituary Committee, Dr. Charles A. Julian.

Dr. PETER EVANS HINES.

DR. A. W. KNOX.

Mr. President, Ladies and Gentlemen:

We have met together to-night to do honor—among others—to a former president of this Society, Dr. Peter Evans Hines, who painlessly fell asleep in the early dawn of August 14th last, just as the peaceful hush of nature began to give place to the sweetest sounds of earth—the joyous morning songs of awakening birds. The city's *grosser* noises had not yet begun; and, in the peaceful stillness of that quiet hour, those gentle feathered songsters seemed as if angels' voices answering a summons of the great Creator to waft his spirit home, and free it from the frets and pains of earth.

And so—

"When the sun, in all his state,
Illumed the eastern skies,
He passed through glory's morning gate
And walked in paradise."

He had come to a ripe old age, full of years and of honors; and we should not *mourn* o'er his going, but rather *rejoice* in his glorious awakening to the wondrous beauties and the peace and joy of that heavenly home unto which he has attained.

Some one has said—and it seems to me a simple and a comforting truth—that what we call "Death" is but the drawing aside of a curtain and stepping across the threshold into a new and beautiful *Life;* and I like to think of him and of my other friends and dear ones gone before in this *bright* way. It is better to dwell on the good and useful *works* he daily performed as he went in and out among us here, than to sorrow and grieve o'er his passing; for his earthly life was filled with unselfish

and kindly *deeds*, carrying courage and hope and good cheer to the sick and suffering all about him.

Dr. Hines was born at Cherry Hill in Warren County, North Carolina, on the 28th of July, 1828. He was the son of Richard Hines and Ann Spruill Hines, and grandson of Jesse Hines and Cecilia Johnston Hines. His grandmother, Cecilia Johnston, was the daughter of Jonas Johnston, a member of the Constitutional Convention of 1776 and a colonel in the War of the Revolution, who fell mortally wounded at the battle of Stono.

Dr. Hines's father—though a large planter and owning estates in Edgecombe County—was a lawyer and also a member of Congress for several terms. He moved to Raleigh to live when the subject of this sketch was quite a youth.

Dr. Hines prepared for College at Lovejoy's Academy, which stood—until about twenty years ago—where now the Governor's mansion stands, and was a landmark in Raleigh's history. He graduated from the University of North Carolina at Chapel Hill with the degree of A.B. in 1849, and was made Master of Arts in 1852 by the same institution. He was a member of the Philanthropic Society there.

He began to read medicine in July, 1849, under Dr. Charles E. Johnson, at Raleigh, and later was under the preceptorship of the famous Prof. George B. Wood, M.D., in Philadelphia, where he attended two courses of medical lectures at the University of Pennsylvania, graduating with the degree of M.D. on April 3d, 1852. He was interne at St. Joseph's Hospital, Philadelphia, in 1852-53, having spent the two preceding summers attending the great Hospital Clinics in the same city.

In 1853-54 he attended the lectures at the Academy of Medicine in Paris, France, and followed closely the clinics and hospital work in that great city. And while in Paris, he was the pupil of those great masters in our profession, Neleton, Velpeau, Tronsseau, Valleix and Rostan. Thus splendidly equipped by a faithful use of these exceptionally fine opportunities, he settled in Raleigh and was, for a time, associated in the practice of medicine with Dr. E. Burke Haywood. Enthusiastically devoted to his profession, he took advantage of every opportunity to add to his store of knowledge and soon won for himself an enduring reputation as a skillful physician and surgeon.

In the early days of the War between the States, he tendered his services to the State and was the first surgeon appointed by Governor Ellis, who commissioned him surgeon of the First Regiment of North Carolina Volunteers, C. S. A., which regiment later won renown by its heroism and gallant conduct at the battle of Bethel, thus gaining the soubriquet of "The Bethel Regiment."

Measuring up to the full stature of a high-class medical officer, he both deserved and won the confidence of his superiors, with the result that his name now stands on the roster of Confederate soldiers with the following briefly-stated but honorable

WAR RECORD:

May 16th, 1861 Surgeon First North Carolina Volunteers (Bethel Regiment.)
May 20th, 1861 Surgeon Provisional Army Confederate States.
June, 1862 Medical Director Department of Petersburg, Virginia.
October 1862, to
September, 1863 Senior Surgeon in charge of the General Hospitals in Petersburg, Virginia.
September, 1863, to
April 16th, 1865 Medical Director of General Hospitals in North Carolina.

At the close of the war, when broken in health and spirits, he took up the life of a farmer on his plantation near New Bern, North Carolina, having with him there his two sisters, Miss Susan and Miss Rowena Hines, and a nephew whom he adopted and reared to manhood. Later he returned to Raleigh and practiced medicine with Dr. Charles E. Johnson until 1876, the year of Dr. Johnson's death.

Dr. Hines held many offices of honor and trust within the gift of the State, county and city. He was Surgeon General of the N. C. State Guard from 1878 to 1883; president of the Medical Society of the State of North Carolina in 1876; President State Board of Medical Examiners from 1878 to 1884; President of the Raleigh Academy of Medicine and of the Wake County Medical Society; County Superintendent of Health and later, City Superintendent of Health at Raleigh; physician to the Soldiers' Home; twice president of the State Confederate Veterans Association, and Commander and Surgeon of the L. O'B. Branch Camp of Confederate Veterans.

He was one of the founders and incorporators of the old St. John's Hospital—Raleigh's first civil hospital—and was chairman of its Medical Board and Physician-in-Chief of that institution from the day it was opened until it was sold to the Board of Trustees of the late John Rex's will, which Board then gave it the name of Rex Hospital. Dr. Hines was a member of the Medical Board and visiting staff of Rex Hospital and was deeply interested in its welfare. He was later appointed a member of its Board of Trustees, and held this position to the close of his life.

He was for many years a vestryman of Christ Church, Raleigh, and was also one of the two lay members of the standing committee of the Diocese of North Carolina.

He was physician to St. Mary's School in Raleigh for more than thirty years. The following extract from a letter of an old St. Mary's pupil evinces the loving esteem in which he was always held there:

"I feel that I must send a word of heartfelt appreciation of the splendid services of one whom St. Mary's especially loved and honored. Dr. Hines and his work are, to me, bound up in my memories of the

dear old school; and I can recall the many times his presence brought relief and comfort. I remember one especial instance of a great kindness to a needy student and of course this is but one of countless similar kindnesses; but it has always seemed to me eminently characteristic, and I have often told it in speaking of Doctor Hines."

Dr. Hines had a strikingly chivalric nature, and he made it a rule never to make a charge for professional services against a woman who worked for her living.

Remembering his own hardships as a soldier, he did not forget the old Confederate Veterans after the war, but ministered unto them and relieved their sufferings at the Soldiers' Home in Raleigh, rendering them gratuitous services gladly, as with unfailing cheerfulness he lightened their burdens and helped to lift their cares and make their hearts glad, until his own failing strength deprived him of that pleasure. In testimony whereof, the "thin gray line" of old Confederate soldiers marched by his bier at the close, as a soldier's guard of honor. He was, himself a brave and uncomplaining soldier to the end—it being the testimony of his wife (who was his constant companion and nurse, both day and night) that not once during his long illness did a single murmur escape his lips, though any one who knew Dr. Hines must also know that to him it was anguish of spirit, to sit with folded hands, inactive, when his life had been so full of unselfish and useful activity.

Though Dr. Hines did a general practice, he was fond of surgery also and performed many of the major operations, including amputation of the upper third of the thigh, Cæsarean section, strangulated inguinal and femoral hernia, ligation of the common carotid artery, etc.; and in 1894 he successfully removed a fibroid tumor from the lumen of the intestine (where it was attached by a pedicle), thus relieving an alarming intestinal obstruction and rescuing his patient from an otherwise certain death. He reported this case in the North Carolina Medical Journal in 1894, under the title of "Entero-Laparotomy." He published but few of his many operations, however, his feeling seeming to be, that his reward lay in his own knowledge that he had been the means, under God, of bringing ease and comfort to a sufferer and restoring his patient to life and its duties.

Dr. Hines was married in 1882 to Miss Frances Iredell Johnson, a daughter of Dr. Charles E. Johnson, his former preceptor and, in later years, his partner. Always a devoted wife, she became, during the feebleness of his later years, his guardian angel and a veritable inspiration to him. Not strong, herself, for years, his *need* of her transformed her weakness into strength—that *wondrous* strength with which self-forgetting love endows a woman, that *splendid* strength that makes us men to stand abashed in its presence, ashamed of our relative weakness! And so, the shadows of his later years were lit up and illumined by the sunlight of her smiles, her unfailing cheerfulness and courage.

(I recall with pleasure the fact that he did me the honor of asking me

to be his "best man" at his wedding and that I procured his marriage license for him.)

By nature quick and impulsive, Dr. Hines was yet generous and forgiving also—a manly man, with sensibilities and affections as tender as a woman's. His adherence to a principle and to his settled convictions —adopted after deliberate reflection—was staunch and unyielding.

Appreciating the friendship and kindness of those whom he loved and trusted, he had in his heart responsive chords, which vibrated in unison with those of his friends, when touched by a kindly hand.

To his patients he gave of *himself*, in faithful, unselfish service—not weighing his personal comfort against their urgent needs, but *spending himself* in loving kindness and gentleness; and they, in turn, rewarded him with responsive devotion and loyalty, the manifestation of which, during the feebleness of his last two years, by frequent visits and other thoughtful attentions, both pleased and deeply touched him. An admirable trait of his character was manifested by his uniform cordiality toward the *young* men of the profession, whom he always seemed glad to help forward in establishing themselves in practice. I recall, with grateful heart, the memory of many such professional courtesies and kindnesses which he did for *me*, in the earlier years of my own professional life, and also the uplift and encouragement they gave me.

Dr. Hines's medical library was a large and valuable one. He once said to a young physician who remarked upon the value of his books: "I have always made it a rule, in purchasing books, to wait until I could get *the best authority* on that subject." This library has been donated to the Medical Department of the University of North Carolina; and his wife takes comfort and pleasure in the belief, that—in placing these valuable books in the hands of students of medicine and surgery and thus assisting them in their preparation for the noblest of professions—her husband's work will be continued through the coming years.

Dr. Hines was taken ill (with a slight stroke of paralysis) on February 23d, 1906, his illness following an attack of grippe, through which he never gave up at all, but bravely continued his round of professional visits. He slowly rallied from this attack and got about for a while, but he never regained his strength. In January, 1908, he had a second paralytic stroke from which he never recovered.

The attentions and kindnesses he received from his brother physicians and from his many friends and former patients was to him a source of great comfort and gratification. His pastor once said, while visiting him, that he could not help noticing the *number* of people who came to "inquire about the Doctor"—and that they came from all the walks of life—high and low, rich and poor, white and colored. He had many devoted little friends among the *children*, also, who came to see him frequently; and they all seemed to feel, intuitively, that he loved them.

Following the announcement of his death, hundreds of letters came to his wife and family from all parts of the country, all filled with love

and admiration for Dr. Hines. Among them, one said: "The greatest blessing that can come to any community is a Christian doctor—he has more opportunities for doing good than even the preacher. God bless the Christian doctor who can minister to the wants of men's souls as well as to their bodies!"

Another letter brought this loving and tender tribute: "He was, indeed, the 'Beloved Physician' of his community and administered untold comfort to many stricken bodies; and now at a good old age, having fought the good fight, he has been called up higher, to receive his blessed and eternal reward."

At the time of his death, many persons of the poorer class called at the house and told of great kindnesses done them by him—things of which Dr. Hines had never spoken.

In an editorial published two days after his death, the Raleigh *News and Observer* made this striking comment on some of his temperamental characteristics: "Strength and delicacy spring from the same source: the heart that can *flame* is the heart that can *love*. And back of this man—guiding star of his life and mainspring of his work—lay a love that did not spare itself to comfort, nor hesitate to use the knife. So that those who differed with him revere him; and those who leaned upon him, miss him; and those with whom he went into the *dark* places, recall him with a responsive flutter of the heart. So that, at a thousand points of sweet and bitter memories, there survive the returns upon a capital of devotion lying at interest in the heart of a people."

DR. GRIMSLEY.

Dr. Joseph E. Grimsley was born Nov. 25, 1859, at the Grimsley homestead in Greene County, and therefore was in his fiftieth year when he died. He was a son of Dr. Wm. P. Grimsley, a well-known and prominent physician and business man of Greene County. Dr. Grimsley was married to Miss Annie Laurie McDougall, of Greene County, and she and six children survive him. Dr. Grimsley located in Greensboro about seven years ago. He readily made friends and soon began building up a lucrative practice. Shortly after locating in Greensboro Dr. Grimsley formed a partnership with Dr. Edmund Harrison. Dr. Grimsley was a noble type of man, gentle, sympathetic and gracious. Quiet and retiring in disposition he made a fine impression upon those with whom he came in contact. His was a life of service, his appearance in the sick-room was a ray of sunshine. The influence of such a life does not cease with the grave.

DR. JAMES D. ROBERTS.

Dr. Roberts died at the Memorial Hospital, Richmond, Va., June 15, 1908. His death caused deep regret in the State at large, and especially by the medical fraternity. He was one of the State's most prominent

physicians, and was at one time superintendent of the Eastern State Hospital, Goldsboro, N. C., serving in that capacity for six years prior to 1887. He graduated at the Bellevue Medical College, New York, class of 1875, and has since devoted his time to the practice of his profession. Deceased was 55 years of age.

DR. JOHN FRANCIS SHAFFNER, SR.

Dr. Shaffner died suddenly at his home, No. 434 South Main street, Salem, September 18, aged 70 years. He was one of the most influential and best beloved, most public-spirited, and cultured men in the State, and his entire community mourns his loss. His life had been an active and interesting one. A man of parts, an ideal citizen are terms justly applied to Dr. Shaffner. His knowledge of human nature made him sympathetic and not cynical. His judgment was unerring, and with all his culture he found delight in the companionships of the humble as well as the exalted. He was a fair man, honest with himself and with others. In his passing his community is indeed the poorer, and throughout the State where he was known his loss is mourned.

DR. B. P. ALSTON.

Dr. Alston died at his home in Henderson, N. C., October 31. He was a graduate of the University of Maryland and was an old and honored member of the North Carolina Medical Society. He joined the State Society in 1868, the same year of his graduation.

DR. E. C. McEACHERN.

Dr. McEachern died in Asheville, August 17. He practiced his profession in Rockingham for a short time. He was 28 years of age and developed consumption several months before his death. He married Miss Minnie Pickard, of Chapel Hill, while he was a student at the University. He left a wife and one child.

DR. H. V. DUNSTAN.

Dr. Dunstan died at his home on Queen street, Windsor, July 1st. He was a general practitioner, and was quite celebrated in his community. He was a member of the Methodist Church, and was Worshipful Master of Charity Lodge, No. 5, A. F. & A. M. He held many important offices of trust. His age was about seventy years. He leaves a wife and several children.

DR. JULIAN A. SMITH.

Dr. Smith, one of Durham's oldest physicians, died at the Watts Hospital in Durham, August 15. His death was caused by kidney and liver troubles. Dr. Smith was 64 years of age, and for many years was one of the leading physicians in Durham. He is survived by his wife and two children.

DR. W. A. LASH.

Dr. W. A. Lash, who had been near death's door for many months, died at his home on North Elm street, Greensboro, the night of August 3d. Dr. Lash was 63 years old and a native of Stokes County, where he spent the greater part of his life. About thirty years ago he was married to Miss Annie Eliza Murphy, a daughter of the late Capt. James Murphy, of Salisbury. Dr. Lash, who was one of the wealthiest men in Greensboro, became associated many years ago with Drs. Benbow and Julius A. Gray and others, who built the Cape Fear and Yadkin Valley Railroad. A sister, Mrs. Annie George, is the only surviving member of Dr. Lash's immediate family.

DR. GEORGE THRASH.

Dr. Thrash died in the Hominy section of Buncombe County at 1:30 o'clock May 2d. He was widely known throughout his county. He was a son of Dr. Geo. Thrash, Sr. Dr. Thrash had been ill for a period of two weeks, and an operation was performed in the hope of saving his life. The disease had progressed too far, and death was inevitable. Dr. Thrash was 40 years of age and a graduate of Chattanooga Medical College.

DR. O. D. KING.

Dr. King died in Albemarle. He was well known throughout his section of the State. He was a son of Dr. King, of Wilmington.

DR. J. C. MILLS.

Dr. Julius C. Mills died in Reidsville May 18, after an illness of several months with cancer of the stomach. Dr. Mills was a brave Confederate soldier, an eminent physician, dutiful husband, affectionate father, a splendid neighbor and a valued citizen. Dr. Mills is survived by his wife and five children.

DR. W. A. INGRAM.

Dr. Ingram died at Morganton, April 29. He was a citizen of Wadesboro and for many years was one of the leading physicians of that place. His wife and one daughter survive him.

DR. WILLIS ALSTON.

Dr. Alston died in his home in Littleton, April 20. No death in that town has ever caused more widespread sorrow. Dr. Alston lived the life and fought the battles of the typical doctor of the old school. Year by year he gave himself to a practice that was limited only by his endurance. He was a brilliant physician, a fine citizen and neighbor. He was honored by the Medical Society of North Carolina in many ways. He served on the Board of Medical Examiners from 1884 to 1890 and in that capacity made a wide reputation. His remains were interred in the family burying ground in Littleton.

DR. ALBERT HILL BOWERS.

Dr. Albert Hill Bowers was born in Davidson County, North Carolina, on the 9th of October, 1880. His parents died when he was a mere child, and he, with other members of the family, were put to the necessity of finding homes where they could. Under such circumstances he went, as from pillar to post, until in his 'teens, going to the public schools of the country only as circumstances would allow, he finally drifted to the cotton mills of the State. A friend found him in the Union Cotton Mills in Maiden, Catawba County, and took him into his own home at Crescent and placed him in Crescent Academy. For several years he remained there, spending a part of his time teaching in the public schools of the county. He completed the course in Crescent Academy up to the last year, when he entered the University College of Medicine, from which, after four years of diligent study, he graduated. During these four years he never missed a day, a recitation, and but a single lecture, a record which, I doubt, can be scarcely found. During his stay in the Medical College he was compelled to earn between terms the wherewith for his course. This he did by dint of hard work. One summer he was street car conductor in Lancaster, Pa., the other vacations were spent in agencies, selling stereoscopes and views, etc. After graduation he went back to Crescent and associated himself with Dr. A. B. Goodman. This association was maintained for upwards of a year, when Dr. Bowers located at Gold Hill, N. C. As a physician, he was a faithful, honest and diligent one, and his success attests the fact that he was above the average for one so young. He was an active member of the Rowan County Medical Society and of the Medical Society of the State of North Carolina.

He married Miss Pearle Lingle on December 24, 1908, and died January 13, 1909, at the early age of twenty-eight years, three months and four days.

As to the man, in school he was all that could be desired. During his several years connection with Crescent Academy he never gave a single occasion to be rebuked or corrected.

He worked hard and stood above the average in his classes. He was kind-hearted, obliging, and very ready to take hold where he saw need. He was confirmed as a member of Bethany Reformed Church, at Crescent and lived a consistent member of the same. He was a model young man, a member of the Jr. O. U. A. M. and W. O. W. His early death his friends and acquaintances keenly feel, and his place will be hard to fill.

DR. J. L. LAXTON.

Dr. Joseph Lavender Laxton, son of Levi Laxton and Salena Perkins Laxton, was born August 31, 1838, on Johns River in Burke County, and died November 11, 1908, of cancer of the stomach. He joined the first company to leave Burke County for the Civil War, in April, 1861, and was in the thick of the battle of Bethel, 10th June, 1861. At the expiration of six months for which his company volunteered, he joined a cavalry company, in which he served with distinction and faithfulness until he was wounded in June, 1864, at Ashland Station, near Richmond, losing his leg. He remained in the hospital at Richmond for sixty days, after which his recovery at home was slow. He was sergeant of Company F, 3d North Carolina Regiment Cavalry, Capt. Alexander Perkins's company, Colonel Baker's regiment, General Barringer's brigade.

Married Miss Julia Corpening, of Burke County, in 1867. Had seven children—five girls and two boys. Two girls died in infancy; Ralph, Frederick, Mary, Josephine and Kittie survive him.

Upon his recovery he read medicine with Dr. J. M. Happoldt and attended medical courses at Richmond, where he graduated in 1868, and immediately commenced the practice of medicine in Morganton, Burke County, where he practiced continuously for forty years, doing a large country practice notwithstanding his disability from his wound, and perhaps did more charity practice than any man in the western part of the State. He was Treasurer of Burke County for twenty-two years. Was County Physician and County Superintendent of Public Health for a great many years; in fact, filling the office of County Superintendent ever since its creation. He had been a member of the Medical Association since .....

He was always ready to answer the call of humanity in his profession, day or night, and continued in such active practice almost entirely up to the period of his death. If a moving picture could present the whole professional life of this man, he would stand out as a hero; and if not "every person," but one out of ten who have been benefited by his professional services could "plant a flower on his grave he would sleep beneath a pyramid of roses."

OGDEN DOREMUS KING, M.D.

Born November 28, 1859, at Washington, North Carolina; died November 11, 1908, at his home in Albemarle, North Carolina. Christian gentleman, husband, father, promoter, friend, philanthropist, physician. A man of very few words but of many and mighty deeds. "He giveth His beloved sleep."

Born in cultured Washington and reared in aristocratic Wilmington, Dr. King appreciated and practiced the qualities that make a gentleman. After being prepared at Bethel Military Academy, Ogden King entered and graduated from the University of Virginia. Then we find the young doctor still seeking knowledge by connecting himself with Long Island Hospital and later with Bellevue Hospital; while in these institutions much knowledge and practical experience was gained which helped to make him the learned man that he was. Nor was that enough. Every fall when the purple haze lurked in the pines and toned down the otherwise gaudy hills resplendent in their vari-colored leaves made beautiful by the frost; at that time of year when the land is most healthy; we find Dr. King, still the student, attending operations and lectures in the leading Northern hospitals. A man ever keeping abreast of the times and marching in the front ranks of progress.

And was this knowledge for naught? But it was in constant use for the healing of man and the glory of God. Never the night too cold, the road never too long and rough, the case never too perplexing for this physician. Nor was it for money that he went, for many of his hardest cases were never entered on his books. His charity practice among the poorer classes in the mill district, although not well known, was made all the more beautiful by its secretness and truth. But not here did his charity stop. Was the patient's larder empty? Was his fuel almost gone? Was his covering insufficient? Or was it only words of encouragement that were needed? Dr. King would replenish his larder, fill his woodhouse, and bring warm covering. Even this reticent man could give those needed words, though few in number they would be, yet each so well weighed and valuable that they were more forceful for their fewness. As a physician, Dr. King was as conscientious as a minister of the gospel.

In the business world we find that Dr. King was far more successful than the average man, and yet quite as generous as he was in his practice. He was the chief promoter of the town of Albemarle. First, we see him very instrumental in bringing the railroad here; then offering free mill-sites as an inducement to their coming; giving streets to the town; taking stock in all worthy enterprises, and building brick blocks for their housing. Dr. King may well be called the Father of Albemarle, for this prosperous town stands to-day as a monument to his efforts.

Now to his home life—the one that really counts. I feel myself

especially fitted for writing of this phase of his life, since it is with this that I am most familiar. Having lived directly opposite his home and reared with his children, it is I, perhaps, more than any other outsider that knows his appreciation of music, art, poetry and fiction, of his deep philosophy, and keen insight into things; of his generosity, kindness and love that he gave to his wife and children, always thoughtful of them and ever forming plans for a safe future for his loved ones. It is enough to say that he was the ideal husband and father.

A deep and knowing minister of the gospel has said that the best method to judge a man's life is to see what kind and class of people attend his funeral. Judging by this standard, few have lived a nobler life than Dr. King. In the great concourse of people that attended the funeral rites of this noble man I found men from every walk of life; mixed with the best and wealthiest of the town were the poorest of the mill district, sad and silent; then many were the country people that drove long distances over rough roads on that biting November day to proffer a sympathetic hand to the widow and to drop a tear on the bier—they as true to him in death as he had been to them in life. In the back part of the house and yard I found many negroes begging for a parting look at their dead benefactor's face.

What a heritage is his memory! What an ideal for the young physician!

"The Principal Public Health Problem in North Carolina," by Dr. T. A. Mann, Durham.

Dr. Stiles: *Mr. Chairman:* In any public health movement to prevent disease, it seems to me that we must come down to a few fundamental and elementary principles; and the first principle that we ought to recognize is that men are very poor housekeepers. Health conservation, disease prevention, depends upon good housekeeping—outside the house. I do not think we are going to reach the ideal condition in this country until the women become actively interested in the public health movement. They are the persons who know what cleanliness is, much better than we men do, and they are the persons who have the time to give up to this work. The physician is occupied all, or nearly all, of his time, and when he does make public statements on health matters, the chances are that many people will think that he is trying to advertise himself and extend his practice. The opinion of

the physician does not go so far with the public as it should go; the opinion of the physician, it seems to me, does not go so far in preventing disease, as does the word of a banker or a lawyer, or a preacher, and it has much less effect in a community than the word of a prominent woman. I think that we should make friends with the women's clubs and get them actively interested in this campaign.

Now as to certain problems which face us in the Carolinas. One of them has been touched upon, with reference to typhoid and hook-worm disease, namely, the privy. Let us face the fact that about 68 per cent of the farm houses that I have examined in four Southern States have no privy whatever. Forty-three per cent of the farm houses which I have tabulated as occupied by white people and 79 per cent of the farm houses occupied by negroes have none. Our negro population is in the ratio of 833 negroes to the 1,000 whites, and there we have a fundamental point that we have to consider in these problems which face us in the Carolinas.

The average typhoid death rate for the entire country is 46.5 per 100,000 inhabitants. In the fifteen negro States it is 72.7 per 100,000 inhabitants; then we come to seventeen States where the negro population is a little less than 2½ per cent of population, and the typhoid death rate drops to about 39; then we have eighteen States where we have less than one-half per cent negro population, and the typhoid death rate drops to about twenty-five per 100,000 inhabitants.

One problem is, therefore, to teach the negro to lead a more sanitary life. He is the person who represents the disease reservoir and disease spreader in the Southern States, and until we make him live a more sanitary life, we must expect a high death rate and a great amount of typhoid fever, hook-worm disease, Cochin China diarrhœa, amœbic dysentery, and all of the other diseases spread by soil pollution.

We have to face a practical problem here. I do not think that talking public health matters to the average adult negro, outside of the better educated ones, is going to do much good,

but I believe we can do a great deal of good if we will teach these public health matters in the public schools. The children start out without prejudice, and we can give them in a few hours, during each school year, many of the underlying principles for the prevention of disease; and those principles, instilled in the children, will follow them into their adult life.

A good many people seem to think that we are going to revolutionize this country in sanitary matters in a few years' time. I can not see it. It looks to me as if it were going to take a generation. Working as I do, among the poorer whites—the rural tenant class—I have come to the sad conclusion that we can not reform the people over fifty years of age. They laugh at our ideas. But we can help the children, if we can only teach them the three or four underlying principles of public health, as applied to the South.

I would therefore submit that the most important step in the movement for the prevention of disease, is to interest the ladies—the public housekeepers. They will do much more work in preventing disease than will the men. These women's clubs want something to do. They are composed of most excellent women; they have a great deal of time; you have not the time to give up to this work; furthermore, the women are the people who come in contact with the unsanitary conditions. It is among our women and children that we have the highest death rate, due to diseases spread by soil pollution. They are the people to whom we can appeal, better than we can to the average public. Start the women's clubs of the country on this sanitary movement, and it will be a success in a very short time. Then, secondly, after the women's clubs, let us interest the public schools; and, thirdly, I think we must have some more rigid laws, or at least rigid enforcement of certain laws. If you go out on the street and shoot a revolver around, you are going to get into trouble. It seems to me that the person who shoots microbes around ought to get into trouble too. The sooner we come to the conclusion that unsanitary living means the "chain gang,"

the sooner will we reduce the death rate in our families. The chain gang would have a number of practical applications in this line—we need some more labor to keep the privies clean.

The question of the dry earth privy has been brought up. Personally I am coming away from the dry system very rapidly. I believe we will have to come to using the tub, with a five per cent carbolic solution in the tub. By using the carbolic solution, people need not clean the privy so frequently as they should clean dry dirt ones; furthermore, the privy is made a much less disagreeable place, and is therefore not avoided so much. Going around among the country people I find that they do not like to use the privy, because it is so disagreeable, and I have made a study, in order that I might design, if possible, a more desirable outhouse. During this last week I have had plans made which I think an improvement over those heretofore suggested. In the first place, we must work for a cheap structure. I have always been in favor of the double slant roof, heretofore, but I find we can save from one to two dollars by using the single slant roof; so I am now in favor of that. Furthermore, I think there should be a ventilator on both sides, at the top, to give a current of air through the room; and the third point in these privies which I have designed, is this: That, for instance, (illustrates) is the back of the privy, that the roof. I have a folding door in the back, to keep the animals away, and I have a ventilator here, on each side, under the seat, in order to make the privy a less disagreeable place.

To obtain a fly-proof privy by means of screens is a difficult proposition. The screen becomes broken and is not repaired; the door, the lids and the back are not kept closed. If we use the five per cent carbolic acid in the tub, we solve the problem, because we have then a fly-proof privy. The flies will not bother carbolic acid.

I am not favorably impressed with the use of lime, in these privies. I find that too much lime can be carried to the food in the kitchen and in the dining room.

Dr. Templeton, of Cary: *Mr. President and Gentlemen of the Convention:* I have listened to the roll-call of our honored dead, and marked the passing of friends and acquaintances of this honored body, year after year, without ever once trespassing upon your time to wreathe a chaplet to their memory, or speak a single word in appreciation of their lives and characters.

I shall ask you this evening to bear with me a moment while I change my course in that particular respect, for my friend, Dr. Hines, of Raleigh.

I had the honor of Dr. Hines's acquaintance practically throughout the whole of my professional life, for he was a member of the Board when I obtained my license. For perhaps a quarter of a century just preceding his death I had the pleasure of more or less intimate acquaintance with him, for upon those occasions that come to us all, and especially to the country doctor, when he would take counsel with the brethren, knowing his integrity, knowing his kindness of heart, knowing his ability—and I place integrity above ability—knowing him thus, I invariably chose him upon such occasions and never once did he fail me.

I have a vivid recollection of my first meeting him in consultation. It was midwinter; snow covered the ground; icy blasts swept the earth; we met in the humble cabin of a negro, in an isolated rural district; yet there, amid the meanness and squalor of abject poverty, his affability, his kindness of heart and uniform courtesy shone as brilliantly as if the setting had been the palace of a millionaire, awakening an admiration and esteem for his character that has strengthened and increased with the passing years.

If I were asked to put an estimate upon Dr. Hines's character, I think I would say that he was a just man. His virtues were such that no higher encomium or eulogy could be sought; certainly none brighter, written on earth, or better, find its way to heaven.

Through the darkness of earth, where the lamp of character ever shines the brightest, no purer, truer, gentler life was

ever lived than his, and no greater heritage can be given generations to come than the lives of such as this glorious dead, who leaves behind his daily walks filled with the memory of public virtue in public life, private character above reproach, and its course bright with the life-light of truth.

It seems to me that Holmes must have had some such fine character as this in mind, when he penned these thrilling lines:

"As life's unending column pours,
Two marshaled hosts are seen,
Two armies on the trampled shores
That death rolls back between.
One marches to the drum-beat call,
The loud-mouthed clarion's bray,
And bear upon a silken scroll—
'Our glory is to slay.'

"One moves in silence by the stream
With sad, yet watchful eye,
Calm as the patient planet's gleam
That walks the clouded sky.
Along its front no sabers shine,
No blood-red pennons wave,
Its banner bears a single line—
'Our duty is to save.'"

I might speak, too, of Dr. Hines's patriotism, of his devotion to "the thin gray line," the remnant of that host of heroes who charged up Cemetery Hill, or died in the trenches at Petersburg, but time presses.

I recall most vividly my last meeting with Dr. Hines. I was passing through the old City Cemetery in Raleigh, and came upon him unexpectedly. He was standing looking upon what he termed his "last resting place," to which he told me he expected shortly to be borne,—an expectation all too soon to be realized.

In the course of the short conversation that followed, in which we touched upon the mysteries of life and death, he said: "When the call comes to me to 'Cross the Bar,' and I am to be gathered to my fathers, I will go with no more dread or fear than I feel when I disrobe at night and retire to my peaceful couch."

Knowing that he must have realized the shadows were long behind him, that just ahead was the dark valley and the river, his words were peculiarly impressive; but knowing, too, as I did, his clean life, his high sense of honor, his broad charity, his devotion to duty—both civic and professional—I felt that his utterance was no empty boast but rather the true, deliberate sentiments of one who had lived long and well, and now approached his end with the proud consciousness of duty well done.

Dr. Hines lived through the most progressive age of the world. His life touched two of the most momentous centuries in all the annals of time, both pulsating and throbbing with progress and advancement, invention and discovery along all the lines of human thought and action, and in no vocation or calling was greater progress made than in his own.

He saw the empiricism of calomel and lancet and blister disappear before more rational treatment of disease, based upon its pathology; saw the crude principles of Laennec in physical diagnosis worked out in the splendid details of a science as presented by Da Costa and Loomis and Butler and Musser; saw the imperfect asepsis of Sir Joseph Lister developed into the marvelous technique of to-day, that enables us to follow disease into the very citadels of life and drive it from lung and heart and brain; saw serum-therapy destroy the triple infections—hydrophobia, diphtheria and meningitis; saw the horrors of "yellow-jack" and tortures of malarial poisoning banished with the ubiquitous mosquito. Yet, through it all, though feeble and stricken with years, he kept at the forefront of his profession, seizing each new discovery or invention and utilizing it with all the vigor of health and enthusiasm of youth.

Such men are the glory of our profession, that lend it splendor and give it to command the admiration and esteem of mankind. Such men never grow old, and to such death never comes, but rather "their life sun sets, as sets the morning star—which goeth not down behind the darkened west, but melts away in the brightness of heaven." (Applause.)

The Annual Oration

THE EVOLUTION OF MEDICAL SCIENCE.

By Charles W. Moseley, M.D., Greensboro.

In striking contrast to that tendency to materialism not altogether unjustly attributed to modern medicine, savage theories of disease are typically spiritualistic.

The savage medicine man who treats his patients on the excellent principle of removing the cause of the disease has discovered at least three methods of getting rid of a demon.

First, the body of the patient may be rendered an unpleasant abode for the intruding spirit, and that in many ways. The sufferer may be vigorously squeezed and pommeled, beaten, starved, fumigated by evil smelling substances, or be given nauseous medicines, which are especially useful if they act as emetics.

To the first of these practices we may perhaps attribute the origin of that more systematic rubbing, undoubtedly, of great antiquity, which has been reintroduced into scientific medicine under the name of "massage."

Of fumigation we find a typical instance in the Apocrypha where Tobias frees his bride from a demon by fumigating her with a fish's heart and liver, "the which smell, when the evil spirit had smelled he fled into the uttermost part of Egypt."

But there is another and less unpleasant mode of expelling a demon; he may be provided with a more appropriate dwelling place. Thus, in the Vedas, those ancient monuments of Aryan literature, the demon of jaundice is entreated to depart into a yellow bird, and the chilly spirit of ague to take up his abode in the frog, while, in later times, the very sight of the golden oriole was considered sufficient to cure the former disease.

We may be able to trace a relation between this form of demonic theory and the mediæval doctrine of "Signatures,"

and shall perhaps find it not altogether unconnected with the still more famous dogma, "Likes are cured by likes."

Thirdly, the savage believed that persons were endowed with power over the spirits of disease, who are able, by charms and incantations, to expel them from the patient's body, and in them we may not improbably see the first germ of the medical profession.

It is usually asserted that the first physicians were priests; it would perhaps be equally true to say that the first priests were physicians. Probably the first physician mentioned in history was Sekhet-enanch, Chief Physician to the Pharaoh Sahura, of the fifth dynasty (B. C. 3533). The description recounts how he healed the King's "nostrils" for which his Majesty wishes him "a long life in holiness."

Physicians, as a class, are referred to in still more ancient inscriptions by hieroglyphics representing a lancet and cupping instrument.

Coming down to two thousand five hundred years B. C., we find another interesting Egyptian relic; it is the medicine chest of the wife of the Pharaoh Mentuhotep, of the eleventh dynasty, not many centuries before Abraham. It contains six vases, one of alabaster, and five of serpentine with other dried remnants of drugs and some roots, all in a wooden chest in the Queen's tomb.

But the most remarkable thing about Egyptian medicine was its unprogressive character. More than a thousand years before the Hippocratic era we find a knowledge of anatomy and physiology quite equal to that of the Father of Medicine, together with a copious and varied materia medica comprising mineral, as well as vegetable remedies. The predominance of the priesthood was doubtless the chief cause of the failure of the early promise of Egyptian medicine.

Hindu Medicine.

In the works of Charaka and Susruta we find a condition of medical and surgical knowledge not unworthy to be com-

pared with the Hippocratic writers, of which, however, there is no indication in the earlier Vedic age, and which had left few traces of its existence in the sixteenth century of our era.

The most striking feature is the high place assigned to surgery, a fact sufficient in itself to disprove the priestly origin of these works.

"Surgery," says Susruta, "is the first and highest division of the healing art; least liable to fallacy; pure in itself; perpetual in its applicability; the worthy produce of heaven; the sure source of fame on earth."

At the same time he emphasizes the unity of medicine: "He who only knows one branch of his art is like a bird with a broken wing."

And much more could be quoted to show the high state of medical and surgical knowledge of his day, and bearing witness to the high esteem in which the physician was held.

The most famous achievement of Hindu surgery was the manufacture of new noses by flaps taken from the cheeks or forehead, an operation especially demanded in a land where despotic rulers and jealous husbands were signally addicted to mutilating their victims. But Susruta also mentions the division of the supraorbital nerve for neuralgia, and laparotomy and suture of the intestine for obstruction and injury, operations lately reintroduced in medicine. And this brings us to the important question: When did this remarkable development of Hindu medicine, which arose and vanished so mysteriously, actually take place?

Recent Sanskrit scholars assert that the language of the medical books indicates an age certainly not long anterior to Alexander's invasion (B. C. 327), or even later possibly than this.

The lower limit has been fixed at A. D. 750.

Now these dates nearly correspond with the period of the predominance of Buddhism in India, and it seems highly probable that the Buddhist millenium was also the golden age of Hindu medicine. The brotherly love and sympathetic

piety inculcated by the Buddhist was more likely to favor the holiest of arts than the caste prejudices and endless formalities of Brahmanism, nor are we without definite indications of the high honor in which the Buddhist held the physician. There is unquestioned evidence of hospitals and asylums for the sick during this period, and some evidence of the existence of medical schools.

The Persians divided medical men into "knife-doctors, herb-doctors and word-doctors, and Ormuzd says that "when these compete, the believer shall go to him who heals by the holy word, for he is the healer of healers, and benefits the soul also."

Medical fees were allowed on a liberal scale, and were secured by the sanction of law and religion. And one would suppose that medicine would make progress in such a land, but such was not the case. The medicine of the Medes and Persians seems to have been as conservative as their laws.

The "word-doctor" long maintained his baleful influence, and the art of healing is probably as little indebted to the land of Iran as it is to the valleys of the Euphrates and Tigris.

The Persian kings wisely enough entrusted themselves neither to the Chaldeans nor to their own countrymen, but got their physicians first from Egypt and afterwards from Greece.

The Greeks had no sacerdotal class, the depository of the divine mysteries, as in Egypt and India. Physicians were quite distinct from priests in the days of Homer, and we have been able to trace the existence of lay practitioners in Greek cities to a period probably nearly as ancient as the deification of Æsculapius.

Any attempt to write about Greek medicine would be incomplete without a reference to Hippocrates, the most remarkable character in Greek medicine, if not indeed, the most remarkable of which we have a record. It was not until the introduction of papyrus from Egypt and the art of writ-

ing with letters from Phœnicia that a real literature was commenced in Greece. Hippocrates, about 450 B. C., is represented to have been the first physician to commit his views to writing, and is, therefore, justly styled the "Father of Medical Literature," as well as the "Father of Medicine."

Hippocrates received his early training in the temple, but later went to Athens and made himself familiar with the doctrines of the Sophists, as well as those of Pythagoras, Demosthenes and Socrates.

Thus, educated in the best schools of Greece, and thoroughly acquainted with whatever records relating to medicine that had accumulated in the Asclepion at Cos, which was one of the most celebrated then in existence, and being contemporaneous with some of the most celebrated statesmen, philosophers, and historians of Greece he was peculiarly fitted by birth, by education and by environment for the great work which he accomplished. Though there were physicians before Hippocrates to whose discoveries he always renders due honor, the reforms he introduced were so important, and the impress which his genius left upon the whole art was so great that the title, "Father of Medicine" is well deserved.

Three only of the principal aspects of his work can here be discussed: His introduction of more detailed observations of disease; the high importance he attributed to prognosis, and his rejection of the supernatural in medicine. It has been well said that great men illumine the world by gathering into a focus the rays emanating from itself, and this is well seen in Hippocrates' third great service to medicine; the rejection of supernatural theories of disease.

The age was one of transition, and the simple faith in the old mythology was giving way in every direction. Thus, even the pious Herodotus ascribes the plague which fell upon the retreating Persians not to the avenging Gods of Hellas, but to the famine and hardship they encountered.

The famous treatise on the "Sacred Disease"—epilepsy, which most clearly asserts the natural origin of disease, is not

certainly genuine, but in an undoubtedly Hippocratic work, "The Airs, Waters and Places," we find the assertion that "no one disease is either more divine or human than the other," and that "none arises without a natural cause."

The importance of this doctrine will be more apparent when we come to describe the disastrous effects upon medical progress produced by a revival of the old theories.

No one ever had a higher sense of the dignity of the practice of medicine, and no one ever showed greater respect for his patients, and while he believed many things that have not stood the test of time, the crucible of the chemist and the scalpel of the anatomist, when we consider the time in which he lived, his genius becomes transcendent.

Of him Euripides wrote:

> "Happy the man who studies Nature's lore—
> Him neither evil thoughts can ere entice;
> No party strife of angry citizens,
> But pure in heart, he scans the face
> Of her, the immortal mother, ever young."

The Hippocratic writings stand in isolated grandeur at the entrance of the second great division of our subject (The Prognosis of Disease), like one of those triumphal arches of Titus or Constantine, which rise amid the ruins of ancient Rome; for the works of later physicians have almost disappeared leaving a barren interval of nearly four centuries, till we come to the days of Celsus, Pliny and Dioscorides.

In the year 632 A. D., there issued from the deserts of Arabia a people not entirely uncivilized, though classed by their more cultured neighbors as barbarians, armed with the tremendous forces of religious enthusiasm. Within a century they had annihilated one of the greatest existing empires, and inflicted a deadly blow upon the other, and after conquering Persia and stripping Eastern Rome of her fairest provinces, had threatened the very existence of the younger nations of the West, until their career of conquest was checked at last by Frankish valor at the gates of Tours,

A. D. 732. This display of physical vigor was followed by an intellectual activity hardly less wonderful. A Byzantine emperor was astonished to find that the right of collecting and purchasing Greek manuscript was among the terms dictated by a victorious barbarian, and that an illustrated copy of Dioscorides was the most acceptable present he could offer to a friendly chieftain.

The philosophers of Constantinople were amazed at the appearance of Moslem writers whom they styled with reluctant admiration "learned savages," while the less cultured Christians of the West soon came to look upon the wisdom of the Saracens as something more than human.

It was this people who took from the hands of unworthy successors of Hippocrates and Galen the flickering torch of Greek medicine. They failed to restore its ancient splendor, but they at least prevented its extinction, and they handed it back, after five centuries burning more brightly than before.

In Arabia, the first examination of physicians was held. They established the Nestorian Medical School, the first pharmacopœia was issued from the hospital at Gondisapor, and their materia medica formed the basis of Western pharmacopœias, and were published in more than thirty editions, and were consulted up to the beginning of the eighteenth century.

In an age when no Christian monarch, with the rare exception of Charlemagne and Alfred the Great, troubled himself in the slightest about the education of his subjects on the progress of science and literature, we find Caliphs establishing schools and libraries for the public benefit, and filling their court with physicians and philosophers. This remarkable generosity to the former, would alone entitle them to the gratitude of the profession, and even had the Arabs themselves made no scientific discoveries they would at least deserve the praise of having encouraged others to do so.

Many people object to the epithet "dark," as applied to the middle ages, but there can be little doubt of the propriety

of the term when used to indicate the state of Western Europe from the fifth to the eleventh century.

Science and literature, if we may use the words at all, were confined to the clergy, and how little they possessed the following facts will show:

A Spanish Synod, of the seventh century, decreed that no one should receive priest's orders in future unless he could at least read the Psalms and the baptismal service. In Italy, about the same time a patriotic historian can find only three schools, and he doubts whether much more than bad reading was taught in any of them.

France was still more unfortunate, for we are told that under Charles Martel, what schools remained were presided over by discharged soldiers who could neither read nor write.

England was a brilliant exception; Archbishop Theodore had brought with him from Tarsus a Greek library, and the school of Canterbury produced men who could read Homer, and what is more to our purpose, translate Dioscorides, but with this exception, Greek was unknown in Western Europe, and Greek was still the key to all higher knowledge, especially in medicine.

Latin versions of some Galenic treatises, indeed existed, but they were so little known that Constantine, the African, could boast in the eleventh century that he was the first to translate that author.

It is true that the church in the dark ages rejected many pagan superstitions, yet she introduced other superstitions remarkably resembling those they replaced, just as plagues and epidemics were universally ascribed to the wrath of God. So particular diseases came to be attributed to the anger of particular saints, while on the other hand even the images of other saints were accredited with magical powers of healing.

The very sight of a picture of St. Christopher, for instance, sufficed to protect a person from sudden death for a whole day. Beliefs like the above were chiefly confined to the

ignorant, but there was another doctrine that threatened not only the progress, but the very existence of medicine, and which was taught by great theologians.

If prayer and saintly intercession will heal the sick, is it not an impious want of faith to employ earthly remedies at the same time?

Many distinguished rulers of the church declared that it was. Thus, St. Gregory, of Tours, rebukes Leonastes, the Archdeacon, because, while trying to cure a disease of his eyes by fasting and prayer at the shrine of St. Martin he had also called in the aid of a physician. What else could be expected, says the Bishop "but blindness?" and concludes with the moral, "Wherefore let this case teach every Christian not to seek earthly aid when he has merited the assistance of heaven."

The final separation of medicine from the church was due largely to the increasing complexity of the art; the rise of the great secular universities, Salerno, Montpellier, Padua and Bologna, and especially to the fact that the recognized medical text-books were translations from the works of misbelieving Moslems whose chief Christian exponents had been convicted of numerous and deadly heresies.

The history of the discovery of the valves of the veins is of special interest and importance which is generally accredited to Sylvius, 1536.

It is interesting in this discussion to note that the three most distinguished pupils of the great orthodox anatomist (Sylvius) were accused of heresy in religion, as well as in science. Vessalius was persecuted by the theologians, Etienne perished in the dungeons of the Inquisition, while Servetus, as all know, met a yet more horrible fate at the hands of Calvin. But the man who nearly anticipated Harvey deserves more than a mere mention.

The first description of the pulmonary circulation was

published by Michael Servetus in his restitution of Christianity 1553.

Servetus begins by rejecting the doctrines of the three spirits, natural, vital and animal, residing in the veins, arteries and nerves respectively, and declares that the natural and vital spirits are not distinct, and that the fluids in the veins and arteries are of the same nature, thus removing one of the greatest hindrances in the way of Harvey's discovery.

"The Vital Spirit" (arterial blood) is formed from a mixture in the lungs of the inbreathed air with the blood which the right ventricle communicates to the left. This takes place, not through the Cardiac Septum, as is generally believed, but by consummate art the subtle blood of the right ventricle is moved in a long passage through the lungs; by them, it is prepared; it is transferred from the pulmonary artery to the pulmonary vein; it is purged from fume by expiration."

He confirms this by the arguments noticed above; compares the connection between the artery and vein in the lungs with that between the portal and hepatic veins in the liver, and says that in the transition from artery to vein "there is a new kind of vessel in the lung formed out of vein and artery."

It would be difficult to add to this even at the present time, and Servetus might well claim to have discovered something unknown to Galen or to the great philosophers.

In the infancy of the race a beneficent Creator said: "Subdue the earth," and with this mandatory decree resting upon the sons of Adam, there came into the race consciousness, the germ of scientific investigation, and all down through the centuries we have seen evidences of this impulse taking form, though often seriously hindered by the superstitions and traditions of both Paganism and Ecclesiasticism. But in spite of persecution scientific truth crushed to earth has risen again, "For the eternal years of God are hers," and there has been one onward, upward march toward the scientific

goal of the race. But I would not have you infer that religion or the church is criticised as an institution, except at such times and under such conditions that the truth of history and the conclusions of experience may be vindicated. I bring you this message not to condemn the church so much as to warn you against the pitfalls of the future. Just as religion teaches that there is an incarnation of evil, so in scientific research there is always the incarnation of disintegration in the form of false beliefs, and the vain effort of incompetency to shine forth as the very elect. True science and true religion have never been in conflict, nor will the denial of a truth ever establish a falsehood.

"When the torture wrung a recantation of the truth from Galileo, did the earth cease to revolve on its axis? Did the river which swept the ashes of Huss into the sea bury in its waves forever the truths he had proclaimed? When our Divine Master perished on the cross, did the doctrines for which He died die with him?"

But I must hasten from a consideration of the errors of the past and further consider some of the brilliant achievements of a less remote period.

Physiological research received a wonderful impetus by Harvey's publication in 1628 of the most important medical classic, the "anatomical exercise on the motion of the heart and blood of animals." This discovery revolutionized our medical thought and placed Harvey's name second only to Hippocrates.

Physicians of the past were often led astray by love of system, and when Galenism was undermined by Paracelsus, many attempted to found systems based on the half solidified foundation of physics and chemistry, but others fell back on the older and better model of Hippocratic teaching. A brilliant example in England was Thomas Sydenham, and this teaching was carried to Italy and Holland by Giorgio Baglivi and Herman Boerhaave. This trio of men laid the

foundation which made the present status of modern medicine possible. They swung entirely clear of supernatural or philosophic theories and followed the Hippocratic dictum in theory as well as in fact. Baglivi flashes like a bright meteor across the horizon of medical history, and has been called an Italian Sydenham. He applies the Baconian Apologue; the ant, the spider and the bee to the various medical sects.

The ant, who gathers food at random and uses it immediately, who goes hither and thither collecting facts and supplying them at once, untested either by the touchstone of experience or the crucible of reason.

The spider, who spins her whole web out of herself, represents the theorizing doctors, the pure dialecticians of science.

The bee, does better than either, for she gathers the crude honey from the flowers, introduces it into her own organism, and then brings it to all the perfection of which it is capable.

The medical historian may freely point to Baglivi as an example of the best type of physician, for he has not only left us the nutritious honey of his teaching, both practical and theoretic, but he improved the short time allotted to him with a diligence worthy of our highest admiration.

Herman Boerhaave held the unrivaled position as the medical teacher of all Europe. His chief service to medicine was his emphasis of its positive or scientific side in contrast to abstract philosophic theories, which so abounded in the eighteenth century. Every vital action (he says) depends on certain bodily conditions and relations; every change in these bodily relations and conditions is necessarily followed by a corresponding change in the vital activity.

John Baptist Morgagni in 1761, after a labor of forty-six years, published his "Seats and Causes of Disease Investigated by Anatomy," one of the greatest books of medicine, which gained for its author the title of "Father of Pathology." Not that Morgagni was the first pathologist any

more than Hippocrates was the first physician, but he combined in himself all the knowledge of his predecessors in that department while avoiding their errors.

By a curious coincidence, there appeared in the same year a small pamphlet by Auenbrugger destined to give important aid in some of the questions raised by Morgagni's work. This work was entitled "A New Invention for Discovering Obscure Thoracic Diseases by Percussion of the Chest." It contained the result of six years experience, and gave a wonderfully complete account of the sounds gotten by percussing various parts of the chest, in health and disease; their value in diagnosis and prognosis, and the diseases which can and which can not be so distinguished. This new idea was recognized only by the minority till in 1808 Napoleon's physician, Corvisart, published a French translation with a commentary and preface which did equal honor to himself and the author. The discovery became doubly valuable on the publication of the treatise, on Mediate Auscultation by Lænec in 1819, about four years after he had invented the stethoscope. Less striking, but no less valuable in its results was the foundation of the science of histology by which the organs of the body were decomposed into their constituent elements showing that they were made up of tissues, each possessing definite physical and vital properties.

The three processes here briefly described—local pathology, local diagnosis and the study of the tissues, form, as it were, the three legs of the tripod upon which the genius of modern medicine took her seat. There she received inspiration from many and varied sources, so many and so varied indeed that they can not be adequately discussed in the limits of this paper. We have followed the healing art in a fragmentary way in its long meanderings of more than forty centuries, and have followed it not only to the border of the land of promise, but have actually seen up to this time how it has taken possession of that land, and one of the first fruits of

the magnificent vintage already gathered was the introduction of vaccination, the immortal discovery of Edward Jenner.

Ether and chloroform were discovered, or at least were introduced as anesthetics almost simultaneously near the middle of the last century, and this discovery, together with the discovery of Sir Joseph Lister, almost revolutionized surgery and enabled the surgeons to explore cavities successfully, and to accomplish many things before deemed impossible. This new sleep "dulls the edge of sharpest steel, brings peace in the eternal war with agony, and wafts pain to oblivion on the drowsy wing of night. It enabled surgery to open new fields for exploration within the human body, made abdominal surgery with its brilliant success the possibility of the age, and with dauntless blade and master hand snatched victory from the long hidden intrenchments of death."

Nothing in all the line of progress during the last century has acquitted itself so creditably as this science of life saving by operative procedure, and we point with pride to these great achievements in our noble art: to the notable discoveries for alleviating human suffering; to the successful efforts in prolonging human life, and to the accuracy, skill and daring of our brilliant operators. For originality of conception, boldness of execution, and success of practice, modern surgery stands unparalleled.

But being an American, and a son of the chivalrous South, I can not refrain from special mention and eulogy of the names of J. Marion Sims and Ephraim McDowell. They were the pioneers in the field of relieving the ills of womankind by special surgical procedure, and wherever enlightened women live they shall rise up and call them blessed.

Sims did his operation for the thirty-third time on a trustful slave before success crowned his efforts, but he was persistent and ambitious, persistent to accomplish the task he had set himself to perform, ambition to relieve the suffering

of womankind, whose need had impressed itself on his sensitive consciousness, and whose mute appeal fired his consummate genius. But Sims, although ambitious did not seek for fame. When it came to him he viewed it with innocent surprise. He lived to tour the capitals of Europe, operating in the large hospitals and before the renowned surgeons of the day, and returned to his native land wearing the decorations of France, Portugal, Spain and Italy, the focal point toward which the then great lights centered. If it be true that no fame is lasting unless founded on labors which promote the happiness of mankind, the name of Sims must live as long as generations succeed each other, and punctuate the progress of history with its cherished memory.

The discovery of different forms of pathogenic microorganisms made possible by patient research with that marvelous instrument, the microscope.

The researches of Pasteur, Koch, Virchow, von Behring, Flexner, and others; the advances in the study of histology and pathology with their marvelous and far-reaching results are matters of such recent history that I will not repeat it here.

The spirit of research is everywhere predominant, and with some of the influence and forces, which in times past hindered our progress, now our faithful allies, the times seem auspicious for the introduction of an era in medical thought and medical achievement; so far-reaching in the scope of its activities, and in its ultimate results as to astonish even the most optimistic dreamers of the past.

To accomplish the results of the past has required much unselfish devotion, many heartaches and failures, infinite patience and unremitting toil. The limits of this paper forbid even the mention of the names of many of our noble heroes much less a specific record of their deeds.

The world has not always accorded to them their just measure of praise, and that which, when its ethical conscience

is aroused it will some day lavish on their names and memory. But in the midst of this eulogy of our illustrous dead and distinguished living heroes, I must pause to mention the services of the yellow fever commission. The noble self-sacrifice of those three physicians, who so unselfishly offered themselves on the altar of scientific research and preventive medicine, costing the life of one and the ruined health of another, but the scourge of yellow fever has lost much of the dread that it formerly inspired, and will no doubt soon be stamped out from civilized countries. The plague, with all its terrors, has been mitigated; and its mode of propagation has been made known. We might go on with this catalogue of successful accomplishment, showing how the hidden cause of so many diseases has been definitely settled, and their mode of propagation more thoroughly understood, and their treatment and their prevention rendered more efficient and certain.

It would be marvelous; it would be a spectacular scene that would move the populace if we could command disease to depart at our touch or bidding. If we could exercise the turbulent neuroses and psychoses; if we could still the storm of mental hallucination that beats against the citadel of reason by a word, it would perhaps, for a time, impress the popular mind, but the work of life saving by painstaking investigation; the discovery of nature's laws, and their application in the prevention and cure of disease; the unrelenting warfare waged on disease germs and germ-bearing insects and animals, the eternal crusade against dirt and the unsanitary overcrowded abodes of the poor is the high mission to which every true physician aspires, and I believe that medical men will more and more set for themselves the task of preventing disease.

To be permitted to live and work in this day, in the very zenith of scientific discovery; in the very blaze of the glory of the past, focused on the present is an obligation and responsibility which should stimulate our energies and stir

our imagination. Let us fall in line with the trend of the times, with the influences and forces which are working out for the race the mastery and understanding of its environment. To us has largely been given this task. Let us approach this sacred mission with clean hands and pure hearts. Let us lay on the altar of its sanctuary our time, our talents and our power. Let us lay tribute on nature, on science, on art, on literature. Let us harness the forces of mind, of earth, sea and sky in the accomplishment of our herculean task. May we not limit our resources to the natural, the material and the tangible, but open our eyes that we may see the psychic and spiritual forces that throb and vibrate with energy as yet unutilized.

But let us also bring deep learning as well as purpose and devotion to our task. May the time soon come when mediocrity will be spurned and when the highest attainments will be the desire of every one.

> "A little learning is a dangerous thing.
> Drink deep, or taste not the Pierian spring;
> There shallow draughts intoxicate the brain,
> And drinking largely sobers us again."

I hope the day is not far distant when the selection of our work will not be so much a matter of expediency, and that, as a profession, we will be freed from the jealousies and bickerings of the past, that we may choose the particular work that we love most and feel best fitted to do, and then we may expect more success in our chosen work, more support and sympathy from those for whom we work, and we may confidently expect that most opposition will quietly fold its tent and silently steal away.

> "Work thou for pleasure; paint, or sing, or carve—
> The thing thou lovest, though the body starve.
> Who works for glory misses oft the goal,
> Who works for money coins his very soul.
> Work for the work's sake, and then it may be
> That these things shall be added unto thee."

The Annual Essay

SENTIMENTAL BARRIERS TO SCIENTIFIC PROGRESS.

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In the choice of this subject for a paper to present to you, I realize more keenly than you may think, that for a thorough presentation of even a few of its aspects, I am perhaps rushing in where "angels fear to tread." The types of sentimentalism that in historic times, as well as in the present, have been antagonistic to scientific research, have been so closely interwoven with either affected or real religious ideas, even may I say with religious principles that it is exceedingly difficult to deal adequately with them, without at the same time often appearing to antagonize not only the church but some of the fundamental principles of religion as well. As little as I may care to bring into a discussion of this subject, anything of the religious, or anything which might appear to antagonize that which is the most, or perhaps altogether sacred, I could hardly content myself with the purely historical chronicle of instances illustrating or bearing upon my subject. It would have been exceedingly interesting to deal only with its historical side did it not necessitate a discussion along religious lines.

The work of scientific research has for its end only one object, the finding of the "truth," and, strange as it may seem in the abstract, the very body that should have most encouraged the search for truth in its very form was the most bitterly unreasoning opponent to this quest. But the early Christian church was not the only religious faith that has opposed scientific research, that has persecuted and denounced those who have devoted their lives and energies to wring from nature her innermost secrets. In ancient

Greece those who were bold enough to attempt to ascribe to the thunder of the skies a natural cause were condemned and persecuted because they were depriving the gods of that which was deemed their special field of activity. Or even further back in the times of ancient Egypt, with all her early learning and phenomenal knowledge of science, were religious barriers placed in the way of the search for knowledge in certain fields. We are all familiar with the destruction of Hypatia by the Cyrelian mob of Monks, even in Alexandria, that great center of learning, because she expounded the teaching of Aristotle and Plato, because she elucidated the geometric teachings of Apollonius. It was not only by denouncing scientific research and its results and by the persecution of the searcher that the early church obstructed scientific progress, for this also either discouraged research or prevented the publication of results. It was this that deterred Copernicus for more than thirty years from telling the world of his discoveries except through personal communication. Even when finally persuaded to publish his discoveries by a high officer of the church, we are told how upon its completion when Copernicus was on his deathbed, the work was declared heretical and ordered destroyed. Even Galileo was compelled to retract on bended knees his epoch-making scientific declarations. So might we pass on down to more modern times and find on every page of the history of the world how religious fanaticism has ever put out a detaining hand to hold back the search for truth. It is not far to find a reason for all this, it is twofold. In ancient times natural science and philosophy were expounded by the same men. And it was impossible for the investigator to not consider how new truths fitted into the hypotheses of his philosophy—his natural science was the exponent of truth as he found it in nature—his philosophy was the exponent of truth as he believed it to be in the spiritual life. On the other hand the church had set upon her interpretation

of revealed truth, as found in the Bible, all the sacredness of inspiration, whether relating to natural or spiritual things. The scientist was only too ready to make far-reaching philosophical deductions from his limited knowledge of the truths of nature in a determined effort to destroy the teachings of the church. The church would curb no analysis of her interpretation of Holy Writ. A good example of this may be found in the astronomer Bruno, who first saw light only a few years after the death of Copernicus and the destruction of his works. Bruno, though trained for the priesthood, found that he could not accept the position of Rome on transubstantiation, nor the immaculate conception. An expression of his views made it necessary for him to flee from Italy to other countries, and finally to England, where in his lectures he taught "the plurality of worlds" and denounced the Church of Rome. He further taught that the Scriptures were never intended to teach science, but morals only, and that they can not be received as any authority or astronomical and physical subjects. Not content to stay within the bounds of natural science, he taught that God is "the one sole cause of all things," thus causing himself to be classed more as a philosopher than as a natural scientist. Finally upon his return to Italy he was thrown into a Venetian prison, where he remained until carried to Rome to complete his eight years of prison life, only to be finally burned at the stake on the charge of heresy and of having taught the "plurality of worlds," which was antagonistic to revealed religion and the plan of salvation. However tempting it might be to consider my subject on the broad basis of philosophy, I know too well my own inability to cross swords with the learned defenders of religion, although I believe as Bacon has written, "any one who properly considers the subject will find natural philosophy to be, after the Word of God, the safest remedy against superstition, and the most approved support of faith. She is,

therefore, rightly bestowed upon religion as a most faithful attendant, for the one exhibits the will and the other the power of God." Yet within the memory of most of us to have been the avowed admirer of the philosophy of Spencer or of the scientific hypotheses of Darwin was sufficient to brand one as an agnostic, an infidel or a godless man. But to-day we find scientific research for truth is welcomed by the theologian, and new discoveries are embraced by him with much more readiness than by the scientist. The theologian is ever ready to adapt new scientific theories, new discoveries to the inspired writings of the prophets. This swing of the pendulum from one extreme to the other has at times been responsible for placing both theologian and scientist in a ludicrous light. I must for this evening, however, content myself to pass by the fascination of the historic record of the antagonism of science and religious sentiment, to consider what is to-day of living interest to not only the present generation, but to all that may follow. The briefness of my time compels me to consider only two instances—viz, the anti-vivisection movement and the opposition to examination of the dead.

It is quite evident, I think, that for the study of life processes observations must be made upon living tissues. This has necessitated resort to animal experiment, as has also the study of the causes and cure of many diseases. The use of animals for this work has led to a very strong movement during the past forty years to either prohibit or limit the use of animals for experimental purposes. This movement, which was originally directed against those experiments which entailed suffering to the animal, has gradually extended to the point where the anti-vivisectionists are attempting to stop entirely the use of animals for scientific purposes. At this point I shall not attempt to justify the sacrifice of animals for such purposes, but shall first devote myself to the consideration of the anti-vivisectionists who

might be divided into several classes. There are, I am sure, among these misguided and misinformed people those who are sincere in the belief that many of the experiments are cruelties carried on in the name and under the cloak of science, and that some experiments are unnecessarily repeated to demonstrate facts that have long been determined, and where no new information is to be obtained the only object being to give an ocular demonstration of certain well-known phenomena.

Then there are those forming a much larger class who might be denominated sentimentalists, pure and simple, who allow their feelings for animal suffering to blind their eyes entirely to any good that might come of the experiment. Their logic is simply this, "You have no right to take the life of or to inflict suffering upon a poor, dumb creature. You are not justified in destroying the life of a single animal to save the life of a human being." These people are entirely impossible and hardly need consideration. They are largely women, and mostly of the childless type who carry poodle dogs in their arms. I am reminded of one woman of this class who held up her hands in holy horror at the use of animals in my laboratory for experimental work—this same woman had to my positive knowledge murdered at least two of her unborn children. It is just possible that I reminded her of her inconsistency.

Then a still larger class is composed of those who are ready to go into a state of hysterical frenzy over anything, and in this they find an outlet for their deformed or otherwise misshapen minds which they nourish upon the drivellings of sensational writers for Sunday editions of that distinctly American product, the yellow journal. One might have some faith in the sincerity of these newspaper writers were it not for their absolute disregard of truth and of the ordinary decencies of life. Again many of the anti-vivisectionists are to be found in the ranks of the S. P. C. A.,

which has a very excellent legitimate field for work, if it will only limit itself to that field.

I was recently very much amused to find myself called upon by such an organization to give expert testimony in a contemplated prosecution for cruelty to a guinea pig. The law required that the animal must be a useful animal to secure conviction. I was called to testify that it was a useful animal because of its use in experimental work. It was amusing, because I had been informed that this selfsame society had at one time considered entering suit against me for the use of guinea pigs in my laboratory researches. Whether anti-vivisectionists are sincere or not in their opposition to animal experiment, it certainly is true that they do not hesitate to use unfair and dishonest means in their efforts to influence the public mind and legislation. They sometimes use isolated and exceptional cases of cruelty in experimental work, which is as unfair as it would be to attempt to prohibit by legislation the use of the horse for draught purposes, simply because here and there some one has overworked or cruelly treated a horse.

Are cruelties ever practiced? Not to my personal knowledge; yet I can well imagine that sometimes such is the case, because, while in the medical profession, I sincerely believe there is to be found a greater proportion of tender-hearted men than in any other, there must needs be some exceptions among so many. And there must be some foundation for the statement that some experiments are unnecessarily repeated to demonstrate already known facts. Whether or not such experiments are useless and without far-reaching results, it would be most difficult to say. Such demonstrations are usually made before large classes, and the strong impressions made by such an ocular demonstration in fixing upon the minds of men and women who will devote their whole lives to a field of work where a clear understanding of the peculiar phenomena is essential can

be responsible for incalculable results. It may be that the impression given from this demonstration unconsciously has the determining weight in making a decision and in passing judgment which at a critical moment may mean the saving of a life. Personally, I believe such experiments are wholly justified, and I am sure that if we could follow out the influences of such an experiment upon all the members of a class we would be astonished at its results. But there is so much that has been accomplished in which the relationship between the information gained and the lives saved by the attainment of such knowledge is direct and tangible, that it is hardly worth while to discuss those questionable instances which by comparison fall into insignificance.

Vivisection, while originally applied only to such experiments which involve the use of the knife upon living animals, has gradually extended, until now it covers the whole field of animal experimentation, whether these animals are utilized in experiments necessitating cutting, or whether they are utilized for the demonstration of the effects of bacteria and drugs in the study of bacteriology and pharmacology. It is needless to point out that in such a science as physiology, which has to do only with the action and phenomena of life, investigation in order to be successful, must be necessarily carried out while life is going on, whether the animals are under the influence of anesthetics or not. In the great majority of instances the mere fact that pain vitiates the results of the experiment necessitates the employment of some general anesthetic such as ether or chloroform. There are, however, a limited number of experiments which might be carried on without the use of any narcotic or other drug which might influence nerve conductivity. Such experiments are happily very rare, and I believe I am correct in stating that they are not repeated except where new observations are to be made, or where there is a reasonable probability of learning new facts. Let this be as it may, it re-

mains true that nearly the whole of our actual knowledge of physiologic processes is based upon the results of observations made in the experiment on the living animal. This is equally true of our knowledge of the action of medicines and of the germs which cause diseases. Until Galen in the middle of the second century determined by animal experiments that the arteries contained blood, it was supposed that they were the conveyers of air. This was information that could not possibly have been determined from the examination of the dead body, and formed the basis for Harvey's monumental discovery in the seventeenth century of the circulation of blood, which would have also been impossible except for the observations made upon living animals, without which, in turn, we would also have never known of the pumping action of the heart, and of the mechanism of its valves, which would have made it impossible for us to be able to determine by means of the stethoscope the meaning of the heart sounds, and to interpret the variation in these sounds from normal, which occur in diseases of this organ.

The discovery of the possibility of transfusing the blood from one animal to another by Louer a few years later was directly responsible for the saving of many lives, either by transfusion of blood from one person to another or by the injection of certain fluids directly into the vessels of those who were suffering from extreme loss of blood, or from great shock. Until Boyle in 1670 placed animals under the bell-jar of an air pump the knowledge of respiratory processes was practically nil. These experiments, together with those of Mayhew, who demonstrated the consumption of air by an animal placed under such a jar, and with those of Lavoisier, who demonstrated that a certain gas contained in the air, oxygen, was necessary to life formed the foundation of all that which we to-day know of the physiology of respiration and of our knowledge of ventilation. The well-known anatomist and surgeon, W. W. Keen, when asked to write an

article of vivisection, wrote as follows: "If a physiologist was asked to contribute a similar paper he would be able to tell a similar story as to the revelations of the functions of the various organs in the human economy obtained through vivisection; if a professor of pharmacology were to write a similar paper he would be able to show an equal debt owing to animal experimentation, in giving us an exact knowledge of the action of new drugs. In this way cocaine was introduced into medicine and the proper use of such a powerful drug as digitalis was shown. If a medical man were to write a similar chapter he would scarcely know where to begin. The whole life history, for example, of the trichina has been studied in animals and the results applied to man, so that if every one would heed the warning, no one need die from the trichina worm in pork. * * * In diphtheria the percentage of deaths has been reduced in Baltimore from about 70 per cent to 5 per cent. The saving of human life in a single year in New York has been one thousand and five hundred. All this is due to antitoxin of diphtheria, which has been evolved almost solely as a result of animal experimentation. Two water companies in London in 1853 experimented on five hundred thousand human beings, and as a result of the cholera one of them killed three thousand, four hundred and seventy-six human beings. In the same year Tiersch in Leipsic experimented on fifty-six mice. Had the lesson of these few mice been heeded the lives of these human beings might have been saved. It was through the animal experiment alone that Koch could have demonstrated the cause of cholera. And only through further animal experimentation would it have been possible in India to be protecting thousands of natives from the ravages of this disease by preventive inoculation. Without the use of an animal experiment to demonstrate the bacterial cause of the bubonic plague, it would have been impossible to show that this dread disease was disseminated by rats and it would have further been impossible to have discovered

that one could vaccinate against this scourge, which bids fair under present conditions, because of the knowledge of the cause and its prevention obtained through animal experiment to lose all of its terrors and be relegated to a position similar to that occupied by smallpox in this country to-day.

Without the animal experiment it would have been impossible to discover that the cause of lockjaw was a germ to be found in the garden soil and in stable refuse. This made it possible to place this disease, which at one time occurred with frightful frequency into a list of diseases rarely seen to-day. It further led to the introduction of the only rational means of combating this disease when it does occur. While in spite of all of the experimental work that has been carried on, the effort to determine the cause of hydrophobia has been in vain, it was possible for Pasteur not only to determine that this disease could be transmitted from animal to animal, but also that by modifying the material used for inoculation it was possible to successfully treat individuals suffering from the disease, or to prevent the development of the disease in those who had been bitten by rabid animals. I might go on and relate to you how the discovery of the cause of such diseases as tuberculosis, typhoid fever, diphtheria and many other diseases have been made possible only by the utilization of living lower animals. Who can calculate the thousands upon thousands of lives that have been saved because of our knowledge of the cause of tuberculosis alone, and of our consequent ability to prevent the spread of infection from one individual to another. The saving of life from diphtheria alone through the discovery of antitoxin would seem to justify all of the animal experimentation that has been carried on since it was first most generally introduced in the Alexandrian school. Nor has medicine alone reaped the benefits of vivisection. Practically the whole modern surgery owes its existence to animal experimentation, both directly and indirectly. The effects

and practicability of ether in 1846 and of chloroform in 1847 were first demonstrated upon dogs. The effects of these two drugs would have probably never been known except for the animal experiment. If among the laymen present there is any one whose misfortune it has been to be under the surgeon's knife, let him stop and think how different it would have been had he not been able to avail himself of the effects of one of those drugs.

Through the animal experiment the surgeon has learned how to control hemorrhage, how to repair wounded vessels. Without the knowledge of the brain derived from the studies of Fitch, Hitzig, Goltz, Ferrier, Schaeffer and others, upon the brain of the living monkey, much of the brilliant brain surgery of to-day would be unknown. Kidney and gastro-intestinal surgery as practiced to-day were founded upon animal experiment. Whereas formerly nearly every case of perforation of the bowel in typhoid fever and of the stomach from ulcer was fatal, to-day fully 25 per cent of the former, and more than 60 per cent of the latter may be saved. From the study of transplantation of bone upon the lower animals, thousands of people to-day are able to walk, whereas they would have otherwise been helpless cripples. It is unnecessary to tire you with further instances which might be multiplied many times, for I think that I have given enough to satisfy any one of the far-reaching results of vivisection as practiced. Indeed, it would seem that the results were so self-evident that it were unnecessary to defend the practice of vivisection, yet it is true that in England scientific research has been much hampered by antagonistic legislation instigated by those who through misinformation, or in many instances by willful misrepresentation have sought to abolish or control the practice of vivisection. Nor has our own country been free from such agitation. This is more notably true in New York and New Jersey than in any other States. The agitation in New York was not the result of public sentiment, says an edi-

torial in *Collier's*, "but has been worked up by a newspaper hungry for sensation by absolute misrepresentation of the facts." *Collier's* further shows the motive of the New York *Herald* in the following words: "The New York County Medical Society was instrumental in having the New York *Herald* legally prevented from carrying certain medical advertisements, and that paper seldom forgets a grudge, moreover, this agitation happens to be extremely good business." I can not do better than to further quote another editorial: "No more weak and foolish agitation has been started than this attack on medical progress for the sake of the poor, 'defenseless dog.' There is enough want and cruelty in this world, whether to animals or to children, women and men. Let our sensational newspaper, let excited friends busy themselves with the millions who are needlessly in pain and keep their hands off that profession which is doing most to lessen the suffering of this world. A law opposed by all competent doctors of the world is a foolish and harmful law to pass." It is strange that these agitators do not realize that it is the public and not the medical profession that benefits by the animal experiment. May I be pardoned if I quote again the well-put words of an editorial writer in the *Journal of the American Medical Association:* "It is only those members of the medical profession who desire to make themselves of more value to their patients, those who have devoted themselves to scientific research for the benefit of humanity, are the leaders in the profession, face to face with an unsolved problem involving human misery and suffering who have either the time, inclination, ability or equipment to carry on a course of animal experimentation. The accusation frequently made by implication that the same man who tenderly and faithfully administers to the sick and suffering also wantonly gloats over the writhing dog or the suffering rabbit is palpably absurd. As to the frequently made charge regarding the use of animals in demonstrating the action of drugs or the technic of operation to classes of

medical schools the greatest objection at present is not that these things are too common, but that they are so uncommon. * * * So long as civilization exacts pain and toil, suffering and death of the lower animals, not only for commercial and industrial reasons, but in many cases simply for the gratification of vanity or the indulgence of luxurious tastes, so long will the reformer desiring to alleviate animal pain find an ample field for the exercise of his well meant efforts, without ignorantly interfering in the most altruistic of all modern scientific movements, viz, the prevention and cure of the diseases to which mankind has long been heir."

There is still another field in which sentimentalism partly born of affection and partly born of religious beliefs materially obstructs the progress of medical science, and thus curtails the ability of the individual physician to gain knowledge, the possession of which would not only aid him to better treat disease conditions, but would also add much to the sum total of medical knowledge, from which much suffering might be prevented and from which many lives might be materially prolonged. I refer to the examination of the dead. I realize full well that the friends and relatives of one just dead can not look with equanimity and without horror upon what to them is the mutilation of the temple recently inhabited by the soul of one near and dear. I can, too, well understand how those who believe in the material resurrection of the body, can upon conscientious grounds oppose the examination of their dead. The religious teachings and beliefs of orthodox Jews made any examination or handling of their dead a desecration. However much we may understand the feelings and beliefs that deter and prevent the performance of autopsies, it remains true that the sum total of information that might be derived from careful examination of those who have died from disease would be exceeded only by the benefits and knowledge which have been derived from the animal experiment. It must be remembered that the members of the medical profession

are by no means infallible, that after seeing a patient, examining him and observing him, the physician must form some accurate idea of the condition present, and having formed this idea, and with it as a basis, he must formulate and carry out a rational line of treatment. If perchance his original opinion of the nature of the condition present is incorrect and this error is not discovered before it is too late, the course which he has followed out may in spite of all the ability of the human body to withstand insult have resulted in the unnecessary loss of life. Were the physician able to confirm his diagnosis, to support his methods, to demonstrate his errors and to discover wherein he might have saved the life of the individual, it is plain that he would better be able to make a correct diagnosis in subsequent similar cases, to institute the indicated line of procedure, and thus be the better able to save life. Not only would autopsies enable us to discover our mistakes which would otherwise be buried, but they would enable us to obtain a more accurate idea of disease processes, and by frequent observation would finally supply us with a fund of knowledge and information that would not only aid the particular physician to save life, but also by the communication of such information to the rest of the profession, would aid the whole profession in its efforts to cure disease and relieve suffering. If the information gained by a single physician was not sufficient for making deductions, the correlations and comparison of the results of many observers of similar conditions must ultimately bring us nearer to the truth. The regular and systematic performance of post-mortem examinations would aid us in the better classification of diseases already known, and would doubtless lead to the discovery of many new diseases which are at present falsely grouped as one disease. Could the aversion to the examination of our dead only be overcome in a single decade the benefits which would accrue to the public health would be so great that it would mark a new era in the history of the world.

"The Country Midwife," by Dr. A. B. Croom, Maxton.

Dr. E. T. Dickinson, Wilson: *Mr. President:* I would like to say a word on this subject. I come in contact a good deal with midwives in obstetrical practice, and I have learned a little trick that I think is a safe one and renders the midwife easily a valuable assistant in obstetrical cases located some distance from the doctor's office. The plan is to so frighten the people by telling them the truth of the danger of examination by these old ladies that they will not allow them to examine them. If the midwife does not examine, or if she is not allowed to examine, then no trouble comes from the midwife, and she is there for the satisfaction of the family and the patient. So I teach every midwife that comes in my sight to never undertake any kind of an internal examination, and I also let my patients have the same information, teaching them the danger that is in it. It is a little trick to get a midwife to consent not to examine the patient, because it is there that she gets in her evidence of wisdom. I talk to her before the patient and succeed in getting her to agree that if she were to examine, that she would not know if there were anything wrong. She consents, then you get her to consent, the next thing, to the statement that if she were to examine and find anything wrong she would not know how to right it, and in that way I get out of that perplexity.

Dr. J. W. Halford, Chalybeate Springs: *Mr. President:* This brings us to the question of vital statistics and State medicine. Every midwife should be required to register, and they should be required to report the number of births they attend. There is probably no county in the State that keeps a correct record of the deaths and births.

The midwife, in my community, at least exhibits more ignorance than any other class of people with which I have to do; but they are necessary evils. Imagine, if you will,

the cutting off of all of the midwives during the present week, and many a poor woman would be in trouble in the absence of the family physician. But we can alleviate this in some slight degree by causing them to register, and possibly giving them some instruction as to the danger of sepsis, and, as the doctor has just said, the danger attending frequent examinations.

I recall one case to which I was called lately to relieve some complication, and on attempting to make an examination, after unusual precautions as to surgical cleanliness, I found a large amount of hog grease and made an inquiry as to what it meant. The old lady said: "I have been examining her." She was perfectly honest in her efforts. They all fill a place, and we must continue to have them, but, as Dr. Thompson says: "We must give them a scrub brush and a green tablet."

Dr. Robinson, of Goldsboro: These midwives are a necessary evil. Some of the country places are not so thickly settled, and they have no doctor, and many times these cases come forward, and if the midwife is not there they don't know what to do if they have to drive eight or ten miles for a doctor.

My experience has been that there are meddlesome midwives, and there are others who do nothing but tie the cord.

You take the poor class of people—the negro, for instance. If it wasn't for the midwife I don't know how they would get along. The child would die, that would be about all. They don't know anything, but they can tie a cord. They can do that, and my experience has been that that is about all, except now and then an exception, when you find a midwife that has made examinations.

I do not see how we could get along without them. It would give the doctor a great deal of work that he wouldn't do. You take this class of patients where a doctor would have to ride eight or ten miles without getting a dollar.

Many instances we have it to do, but very few of us are going to ride from one to six miles unless there is some complication, and if it wasn't for the midwife I don't know what we would do. And at the same time, if you educate that nurse that she is to do nothing but sit there and wait—as we all know, labor is a natural process. I often tell my patients we all come that way, and generally get along all right.

I think it is criminal in a husband not to provide a doctor, but many times a husband does not care a thing for his wife and will not provide her with the necessary medical attention.

Dr. Payne, Norfolk Va.: *Mr. President:* Talking about the propriety of mitigating necessary evils: In 1896, when President of this Society, I advocated licensing midwives. Though I have seen much less practice in midwifery since that time, I still believe that the law owes it to the helpless women of this country and the unborn children that something should be done to mitigate this evil. I don't really believe that we can do without them, and that is not only true in rural districts, but it is also true in cities. We owe it to the profession, we owe it to the helpless victims of these old women, to give them some instruction.

I know one doctor in Eastern North Carolina—Dr. Baker of Tarboro—who has a class of midwives who are doing midwifery, and those who aspire to do such. He is teaching the simple principle of asepsis. They come to his office, and he teaches them what they have to do in a cleanly way, and I claim that Dr. Baker is building up a greater work in that community than almost anything else he could do.

I have seen horrible things done by midwives. I remember once, on the second day after delivery, I was called to see what was the matter with the baby, and found a torn perineum. The old woman had hooked her finger in the perineum and it was in a dreadful fix.

I have seen cases of sepsis which must have come from dirty midwives. But while we are arraigning them we ought to say that after all these women sometimes—I don't know that I would be safe in saying oftentimes—do leave the patient in a better condition than a medical doctor. There is a constant tendency to hurry through with the obstetrical case, to deliver with forceps, and the number of lacerated perineums sewn up—and most of them are sewn up very promptly—but it is never the same sort of perineum they had before, and I think when doctors make war on midwives they ought to think what they have done, and are doing, with their medical efforts.

The midwife don't generally make an examination. The poor woman sits there and waits.

I remember once in Davidson I was called to see a woman who had been in horrible pain all night, whom the midwife could not deliver, and when I got there the woman was standing by the bedside with her apron stretched out in this position—the edge of her apron under the patient's hips. I said: "What are you doing, Nellie?" She said: "I am waiting to catch the baby." I made the examination and told her probably six weeks later it would come. Certainly the old woman was not doing any harm!

Another thing: I believe midwives have just as few lacerations as doctors do. They do not do any harm trying to support the perineum, do not use forceps or provoke reflex pain, and, in my experience, while they can not sew up a perineum, there are just as few perineums to be sewed up after the midwife gets through, as after the doctor gets through.

Dr. Cyrus Thompson: *Mr. President:* Dr. Croom's paper was a very short one, and yet upon a subject that was well worthy of discussion, though I don't know that I can add anything important to what has already been said.

But the matter is of special interest to me, and was of

so much interest that three years ago at Charlotte—some of you will remember—I wrote a paper which covered a large portion of this matter.

The midwife is a necessary evil. There are not doctors enough within reach to welcome the numerous and constantly coming guests; but I don't think that it is necessary that we should have an absolutely ignorant and uneducated body of midwives. It was this position that I took in the paper, which I had for the Charlotte meeting, and which my friend, Dr. Laughinghouse, read for me in my absence.

This thing presents itself to my mind as Dr. Croom has said: "If a woman goes there with roots and herbs to practice, then you hamper her by legislation. If she goes there as a midwife, where she is very much more likely to do harm, the law interposes no barrier to her practice at all." All that is contradictory. The law would not permit a man or woman to teach your child or mine its letters unless the persons teaching had first stood examination and shown some sort of fitness and capacity to teach the child; but if a woman comes to the most critical time of her life, a time that may involve not only her happiness, but the happiness of her husband and her children, then the law says that an ignorant, dirty woman has as much right to go and wait upon her as you, who have studied and stood your examination under the law.

The thing is not simply anomalous, but it is absurd and criminal. It continues simply because of custom, and for no other reason in the world. If this Society some time would rise to the dignity of saying to the Legislature of North Carolina, "Make some requirements upon the midwife, as you make upon the school-teacher, the doctor and the lawyer; let her show some capacity and fitness for this work which she is permitted to engage in; arrange some way, if nothing more, that the physicians in the counties may hold institutes like Dr. Baker, and teach them cleanliness

at least!" That will not be done unless the Society begs, begs that the lawmakers of North Carolina shall do something for the protection of the wives and mothers of North Carolina. I asked that it be done three years ago. It has not been done. I ask to-day that it be done, but I shall be singing the song of Moses and the Lamb in the blessed land (Oh, yes I will; don't shake your heads and tell me I am not going there; the Lord knows His own!), and some man, possibly a friend of mine, will be standing here and asking this Society to do the reasonable thing, which it never has had the courage to do, to go to a body of lawmakers and ask it to do the right thing and the needful thing. You have sense enough to do it, but not the courage to do it. The blessed truth of it is that I have sat in two Legislatures, and I have never seen a legislature that showed as much intelligence upon its countenance as the body of men that meets in this hall.

Now, there is one way out of this that occurs to me: It is the fad now for a young woman to become a trained nurse. She has a training in the hospital, and out in the country, if you want a trained nurse, you can wire down to the hospital to send one, and out she comes. Some get employment with great readiness. Many of them do not get very much to do, and the supply is likely to exceed the demand. If these young women that go to train themselves for nurses and depend upon that for a living would especially train themselves for midwifery and settle around in the cities and in the towns and in the country, then they would take the midwives' practice, and do it decently. If they will do that we still may remain as cowardly as we please, and yet we have come to some sort of reasonable solution of the difficulty that confronts us on this subject.

Dr. H. McKee Tucker: *Mr. President:* I am very sorry I did not get here in time to hear Dr. Croom's paper, but the views of Dr. Payne are so at variance with my own

ideas in regard to forceps that I want to know what the other gentlemen think. I am sure that forceps, properly used, is one of the most efficient means we have for the prevention of laceration of the perineum, and instead of forceps being too frequently used, I think they are too seldom used. I think, properly used, they rarely cause any harm to child or mother, and when you delay use there is much harm caused and more harm comes from delayed use than early application.

Dr. Payne: *Mr. President:* The statement of the gentleman substantiates my testimony: The growing tendency is more forceps, more forceps, more forceps.

Dr. Thompson: *Mr. President:* Just one word more, Dr. Payne and I are very much older than my friend, Dr. Tucker. We are not old men, you know, but then we have been young a longer time. Somewhere it is said: "Old men for counsel"—that is, those who have been young a longer time; and "young men"—that is, those who have not been young long—"for war."

I heartily agree with Dr. Payne in his views on the use of forceps. I never use forceps unless I am compelled to do so, I do not care how much time I have to spend waiting on a normal labor. Every baby that can come along in the naturally appointed way ought to come that way; and no man ought to apply his forceps unless compelled to do so, certainly not simply to save time for himself, and certainly not to prevent a laceration of the perineum.

Dr. G. T. Sikes, Grissom: *Mr. President:* I did not have the pleasure of hearing the paper.

I want to give the Legislature that Dr. Thompson was a member of, credit for being more friendly to the medical profession than some of them have been. If he could have had the pleasure of going, as a member of the legislative committee, to the Legislature, and asking for some of the things that the medical profession of the State wanted, and

seeing what they got there, he would not expect much, gentlemen. I had that pleasure from the Legislature prior to the last, and found how very difficult it was to get anything from those legislative gentlemen.

I am not here to say anything especially relative to the practice of midwifery. I think the better plan, if we hope to educate any one, will be for the medical profession of North Carolina to turn its efforts to the education of the people. I believe it will be easier to educate the people to understand the necessity of having a skilled physician or intelligent midwife, than it will be to try to educate the class of midwives we now have. (Applause.) I think that will be very hard to do, but every doctor has an influence in his community, and it is easy for him to disseminate an educative influence among his constituency.

Dr. Burroughs, of Asheville: *Mr. Chairman:* I would like to say one word:

In regard to this midwife question, I think legislation will soon prevent them following their practice without special license. Indeed there is a plan under consideration at the present time to protect innocent women against these ignorant midwives.

I do not think the vagina of a woman should be probed by the dirty finger of a man, and I think that it should only be entered by an aseptic index finger and a clean upright member. These two are the only things that should ever enter this sacred cavity, unless an abnormal condition exists.

Dr. Thos. B. Ashby, Mt. Airy: I have had a great deal of experience in midwifery, both white and black, young and old. I have delivered women from thirteen to forty-eight years of age, from the top of the Blue Ridge to Pilot Mountain, and I concur with some of the things said, and with some I do not concur.

I have seen midwives very meddlesome and officious, even going so far as to get up into the bed between the patient's

limbs and insert both hands, worrying the patient and themselves; and I have seen them holding the apron, as brother Payne stated.

It does not take an expert surgeon to tie the umbilical cord sufficiently to keep the child from bleeding to death, but how many of these so-called midwives know how to tie the cord?

I have never seen one, in my experience, that understood the art. They always tie it as though they were tying a bag or a shoestring, and you all know what might be the consequence if this string should happen to break. Then you would need an expert surgeon at once to keep the child from bleeding to death.

Some are competent, and those that are competent are those that are too timid to interfere with the procedure of labor.

This is all I have to say about the question of midwifery, some are competent, but the majority are not.

Dr. Chas. O'H. Laughinghouse: As to educating midwives, the work of Dr. Baker, as related by Dr. Payne, has in my hands proven impractical. I have heard of Dr. Baker's efforts along this line before, and was so much impressed with them, and thought them so fine, that I undertook to follow the same plan, but the midwives that I attempted to teach were among those "that have eyes and see not, ears and hear not," the things that I would impart to them.

Midwives, such as we have in Eastern Carolina, because of their ignorance, can not be taught antisepsis, to say nothing of asepsis; they can not be made socially clean, much less surgically clean. There is an amount of property, real and personal, clinging to their fingers, and a hue of deep mourning to be seen beneath their nails, that makes one give up as hopeless the idea of making them anything other than something to be avoided in an obstetric room.

The thing for us to do, with reference to this proposition, is to teach cleanliness everywhere, in the kitchen, in the house, in the schools, personal cleanliness, teach boys and girls what

it means for health, how potent it is against all infections, and it will be only a short time until the ignorant, dirty midwife is everywhere known to be, not only an unnecessary, but a dangerous evil, and the coming generation will push them aside as a menace to society.

"The Treatment of Puerperal Eclampsia," by A. A. Kent.

Dr. W. O. Spencer, Winston: *Mr. President and Gentlemen:* I enjoyed and appreciate Dr. Kent's paper very much, and thoroughly agree with him in the idea of there being other causes producing eclampsia than by non-elimination by the kidney. I wish to mention one case particularly, which came under my observation this spring. Mrs. Z. L. Z., age 22, a primipera, her labor was normal. Four weeks after confinement she was taken with violent pain in region of the gall bladder, reflected to epigastrium. Her attendant diagnosed gall stones. This kept up at irregular intervals for one to several attacks in twenty-four hours, some days spent without this inconvenience, for a period of three weeks. The case was referred to me May 3d, being the seventh week after confinement. Upon examination I found there was a tumor in region of gall bladder as large as an orange, or larger, somewhat tense, easily palpable, very tender. Upon palpation there would be pain reflected to epigastrium, with nausea and vomiting, very similar to the pains in epigastrium which we frequently find preceding eclampsia.

There would be very rapid dilatation and alternating contraction of pupils, equal in both eyes.

There would appear on face, as all over body, splotches varying in size from a quarter to as large as my hand, simulating erythema rubra.

I saw she was a very sick womn. She lived ten miles in the country. I advised that she could not go home, and advised to be sent to hospital. She was taken to the home of a relative who lived in town. In about half an hour after she left my office I was summoned in haste, found her having violent eclampsia. She had eight or nine before we could get them under control. Gave first morphine, ¼ grain, hypoder-

matically, then gave chloral 40 grains, and bromides 60 grains per rectum, controlling the eclampsia with chloroform. I then began with large doses of calomel, grains five every hour or so until 45 grains, I believe, was given, to eliminate the toxins by this means. As a result, twenty-one stools by 9 a. m. next morning. Her mother told me that in one movement there was something like a piece of hemp rope, three or four inches in length (like one of the coils of a piece of hemp rope) and about the size of a large lead pencil, hard and firm. This evidently was inspissated bile and other material that had plugged the bile tract—the ducts. Next morning the eclampsia was over, the pain had all subsided, tenderness and lump gone. She passed on with but little trouble until ten days later she was brought back to my office, saying her shoulder was out of place. Found a subglenoid luxation, which was reduced under chloroform. She evidently dislocated it during the eclampsia, unrecognized at the time. She complained of the entire muscular system for several days after.

This was evidently a case of toxæmia due to a septic gall bladder cholecystitis, due to a plug in duct completely stopping the flow of bile. Urinalysis showed no albumin, but large quantities of bile, no jaundice. She made a complete recovery, all pain and tenderness over gall bladder and epigastrium disappeared. This evidently was a toxæmic condition producing eclapsia seven weeks after confinement through septic gall bladder, and not by fault of kidney action.

In addition to the treatment mentioned above, she was subsequently put on glychocholate of sodium and sodium phosphate.

Many thanks to Dr. Kent for his valuable paper.

Dr. Chas. O'H. Laughinghouse: *Mr. Chairman:* I was greatly interested in Dr. Kent's paper. It was most excellent in its thoroughness. It seems to me, however, that in the treatment of eclampsia, not enough emphasis was laid upon its prevention by a constant surveillance of the pregnant woman from conception to confinement. If pregnant women are taught and prevailed upon to practice the hygiene of pregnancy, if they are carefully inspected at stated intervals by a physician, eclampsia can, to a great extent, be prevented, which to my mind is the important thing to do.

Dr. Thos. B. Ashby, Mt. Airy: I want to thank Dr. Kent for his very instructive paper upon this very important subject, especially to every country practitioner as well as every city obstetrician.

I think it is one of the ablest papers I have ever listened to. There are some points in it I like extremely well.

I practiced medicine seven years before I saw a case of puerperal eclampsia, and then I did not care if it had been all my life before I saw that one.

I used the usual remedies, hot packs, bromides, chloroform, chloral hydrate, etc., until some ten or twelve years ago, some writer, I do not remember who, perhaps Dr. Lusk in his book on obstetrics, suggested the idea of the hypodermatic treatment of these cases with F. E. veratrum viride, and ever since then I have been using it.

But I think of all the treatment for puerperal convulsions, prophylaxis is the best.

Begin at least two months before confinement, and I always tell my patients to begin using some saline, something that will be effective, and take it the first thing in the morning on empty stomach just as they get out of bed. Anywhere from one to three teaspoonfuls of ordinary salts; if they prefer Rochelle, all right, and that is a great eliminator.

As Dr. Kent suggests, it acts on the eliminatory organs and throws off this poison, whatever it may be, and carries it out.

Of course we know there is something in the system that causes these convulsions, because if they get over the puerperal convulsions they always recover from the cause.

The treatment—if you strike them at once without warning that is in the convulsions—I give hypodermatically from ten to fifteen minims of F. E. veratrum viride, and repeat in from one and one-half to three hours, if not sufficient.

I have never lost a case since I have been using this treatment. I give it before, during, or after confinement, as the case may demand.

Dr. Harris, of Henderson: I want to thank Dr. Kent for his paper, and to state one point, namely, that each patient is a law unto herself. You must not have any routine practice—

and I speak out of an experience of twenty-five years. Treat each case on its own merit. But I think the most important thing is prevention, not only here, but everywhere else, but especially here. Teach your clientele why you want them to be examined at regular intervals, and in a vast majority of instances you will prevent those horrible cases; but when it comes, treat the case on its own merits and eliminate, as far as you can.

My experience has been (I think there is a teacher to the contrary now) to deliver this woman as soon as possible.

The cases that I get in time, they usually get well, and the others do not. That has been my experience. The cases you get in time and deliver promptly and treat regularly, get well.

Dr. Kent closes: *Mr. President:* I wish to thank the gentlemen who have so very kindly and courteously assisted me with this subject, in its discussion. The discussion of a paper is quite frequently the most instructive part of it.

I will just say further, that I fully appreciate my friend's remarks as to the advantage of seeing your case early and treating it yourself.

As a matter of fact, the only two fatal cases of puerperal eclampsia that I have seen in twenty-five years, were two cases in which I was called as a consultant. If I had seen those cases earlier, I feel quite sure that neither of them would have occurred. Possibly if the doctors who saw them before me had seen them sooner the eclampsia would have been prevented, or at least would not have been fatal. I have a conviction that almost every case, if not every case, of puerperal eclampsia is preventable, if the doctor has the opportunity of seeing the case and taking it in hand at the proper time—which should be much earlier than we frequently do see them.

Report of the committee appointed to draft resolutions in regard to Dr. Lewis's retirement from office, read by Dr. J. T. J. Battle, as follows:

Whereas, our former and most efficient Secretary of the Board of Health, Dr. R. H. Lewis, has decided it necessary to resign from the position; and whereas, for the long period of seventeen years of most arduous and difficult labor, he has accomplished so much, by unfaltering zeal and devotion, for the upbuilding and honor of the profession, both of the State of North Carolina and of the Nation; and whereas, he has

so carefully safeguarded the people against the threatened inroad of disease as to save innumerable lives, the suffering incident thereto, and great pecuniary loss; and whereas, during these strenuous years, we have seen and appreciated the results of his great labors; now, wishing to express the esteem in which he is held, not alone by the profession, but the laity, be it hereby

Resolved first, That this Society express its conviction that he has done more, both in his official and individual capacity, than would have been possible for any other one to have done.

Resolved second, That we with reluctance accept his resignation, realizing that we lose in some measure his great capabilities and far-reaching influence.

Resolved third, That he, having been such a potent factor with the Legislature, has saved us from impending adverse legislation and secured such salutary measures as are responsible for our present advanced position in sanitary work.

Resolved fourth, That we earnestly implore him to give us yet his wise counsel and help in time of difficulty and threatened legislation.

Resolved fifth, That it is our sincere wish and prayer that he, having done so much for sanitation and the health of others, may himself be blessed with many future years of vigorous health and abundant enjoyment of the blessings and happiness of life.

Moved by Dr. Harris that the report of this committee be received and filed and spread upon the minutes, and that a rising vote of thanks be had to express further the appreciation of the Society of Dr. Lewis's usefulness to the profession of North Carolina during his term of office; which resolution was unanimously carried by rising vote.

Dr. Lewis: *Mr. President and fellow-members of the Society:* I can not sit still and not express a word of appreciation of this evidence of your partiality, I am sure, and regard.

No one realizes more than I do my own shortcomings in the work. While of course you all know that it has necessarily been a side issue in the professional life of the secretary, at the same time of course I realize that I might have accomplished more, but my heart has been in the work for these seventeen years, and I have had in view always the welfare of the people, and in particular the welfare and the success and the advancement of my own profession. It has been a labor of love with me, as I had the opportunity, living in Raleigh

and commissioned by you to look after such matters, to protect the legislation we had, as far as possible, and to procure other legislation to advance the cause of the profession.

The record has been made up, and I give up the work as Secretary of the State Board of Health—that is, the official work—with regret, but I do not propose to abandon in any way work that I may do to still further advance the cause of the public health and the cause of the medical profession of North Carolina. They both will always be dear to my heart, and I expect, as long as I live, to take an active interest, and to do all in my power to that end.

I can not express to you, Mr. President and gentlemen, my appreciation of this evidence of your kindness, and, as I said just now, I feel your partiality. While that does not appeal so much to my judgment, it appeals to my heart very strongly, and I retire from the office with a heart very full of comfort and gratitude for the recognition that you have rendered the feeble efforts that I have tried to make for the cause that we all love. (Applause.)

"Importance of Early Recognition of the Indications of Cæsarean Section," by H. McKee Tucker, Raleigh.

Dr. R. O. Dees, Greensboro: *Mr. President and gentlemen of the Society:* Dr. Tucker's paper interests me very much, and I want to thank him for it.

I think we should do more Cæsarean sections than we do. And of course the early recognition of the case is very important, and I think in all cases the Cæsarean section is the proper course to pursue. In any case that requires one Cæsarean section, I think the second section should be avoided. In pubiotomy or symphysiotomy, we usually have a patient that is an invalid for life, and in this case I think we are thoroughly justified in doing a hysterectomy.

Dr. C. M. Strong, Charlotte: *Mr. Chairman:* I have enjoyed this paper. It is well written.

The point I want to emphasize in Dr. Tucker's remarks is the necessity of doing Cæsarean section before much traumatism or infection from the attempt to deliver with forceps. The danger is three times as great when much attempt to dilate the cervix and deliver has been made. These are the

mortal cases. The doctor ought to be able to at least make a presumable diagnosis of a narrow pelvis, and also take into consideration the patient's condition, and this is the time to send for the surgeon to do the operation. The mortality is then low for mother and child.

One case I recently had of a very narrow pelvis, in which a vaginal Cæsarean section was done. It is a little more simple than an abdominal section, and yet you have to have a little more roomy pelvis to do it in, using wide cervical clamps on each side, and separate the pubic bone by pubiotomy with a giglii saw, and you have all the room that is necessary, in the majority of cases. You close up the wound as you do in an ordinary cervical tear or after operation. In this case I saved both mother and child, with good results, her previous labor resulting in death of the child and a grave puerperum to the mother.

You should get very good results by this operation, in moderately contracted pelves, but it does not take the place of abdominal Cæsarean section in very contracted cases, especially from rickets, where the bones and joints have hardened, preventing the spreading apart necessary in a vaginal operation.

As I said, these cases should give fairly good results, provided the woman has not been infected with trying to do too much with forceps and manual delivery.

Dr. R. L. Payne: I want to thank Dr. Tucker for his paper, and should say that I agree with him thoroughly in all that he says.

I only want to take issue with the gentleman in regard to vaginal Cæsarean section in contracted pelves. I think in that case the difficulty is in the pelvis, and not in the cervix, and that one should operate from above. If I were to do a pubiotomy or a symphysiotomy to gain increased room, I think I could very well let my cervix alone, dilate it, put on forceps and deliver, without Cæsarean section per vagina.

I am inclined to believe that a Cæsarean section done from above is much less dangerous than the other. The hemorrhage is often exceedingly troublesome and difficult; the danger of infection is great, and it seems to me that a vaginal Cæsarean section is something to be avoided always.

Dr. D. A. Stanton: *Mr. President:* It is not my purpose to discuss this paper, but this is an intensely interesting subject to every physician who attends a case of confinement. It is coming to us all if we practice very long. We may go for years and not see a case, and then we will have our share of it. It is one of the complications that we should be ready to meet when it does come. We should bear in mind always that this is a condition that exists, and that it is coming to us.

It has been my fortune, or misfortune, as you may view it, to see only three cases in twenty-two years, and those three cases came in the space of forty days—one in my own practice and two in consultation.

In the management of the case it was with me as with Dr. Tucker—they were all central implantations—and the first thing, and the only thing, that could be done was to rush through the placenta, turn and deliver. I was astonished when I delivered the first one at the small loss of blood. My professor gave me the worst scare on that subject that I got while I was at the medical college. I expected to see my patient bleed to death, and was very much surprised at the small loss of blood. I believe it is better to go straight through than to the side. Of course, if it was lateral it would be best to go that way.

Dr. Tucker closes: I desire to thank the gentlemen for discussing my paper, and should say, if the paper could teach one lesson, the most important thing would be this: to urge every doctor to examine every case that he attends. When he first finds the patient to be pregnant, examine her; when he finds contracted pelvis, estimate the degree and act accordingly.

I think more important than educating the midwife is to educate the doctor. Every doctor who has a case of contracted pelvis and lets that case go in labor, and finally stumbles upon the fact that it is impossible for him to deliver after she is worn out, is certainly to be censured, and I think one of the most important things is the systematic examination of every case of pregnancy.

"Frigidity, from the Sociological and Gynecological Viewpoint," by Dr. Strong, Charlotte. (See page 240.)

"A Review of One Hundred Cases of Laparotomy," by Dr. W. P. Whittington, Asheville.

Dr. M. E. Robinson, Goldsboro: The remarks I desire to make concern the carcinoma. I am sorry to say that has not been my experience. A few years ago I carried a lady to Johns Hopkins. To show you the condition of that patient, Dr. Kelly turned around to the doctors present and said: "I will have to compliment Dr. Robinson. He has brought this patient here in the best condition I have ever seen one brought for operation. They generally wait until it is too late. Doctor, I can assure you of perfect success."

Three years from that day that woman was dead.

My experience has been that some will be intermittent, but the majority of them come to time.

Dr. Whittington closes: I just want to emphasize the point I made in the paper in regard to carcinoma, that the patient will be permanently cured if all diseased tissue is removed before the disease becomes constitutional. There is some question as to just when that is. Sometimes we may have a patient like Dr. Eliot brought out, that does not appear to have any further development; still, metastasis may have taken place and the condition hopeless. Some of the cases upon which I have operated seem to be of that character, and others that seemed to be further advanced have as yet shown no tendency to recur.

Thursday Afternoon, June 17, 1909.

Dr. Register: *Mr. President:* Inasmuch as we have so few members present, I should like to make a motion that we adjourn sine die.

The President: Owing to the fact that most of our members in attendance at this meeting seem to be so desirous of riding through Biltmore and enjoying themselves rather than reading and discussing papers, I think it a good time to install the newly elected President. I will appoint Drs. Register and Dunn to escort our newly elected President to the chair.

Dr. Burroughs, upon being escorted to the chair, was addressed by the President as follows:

Mr. President and Members of the Medical Society of the State of North Carolina:

It affords me great pleasure to introduce to you Dr. James A. Burroughs, of Asheville, who will serve as President of this noble organization for the coming year.

In conferring this honor upon you, sir, we feel that the Society of North Carolina has honored itself. It has recognized your noble work for the Society during the past several years, and we predict that the coming year will be the noblest in the history of the Society, and we pray that you may rule with honor to yourself and to the Society, and that the coming meeting at Wrightsville, on the third Thursday of next June, will be a record-breaker. (Applause.)

Dr. Burroughs: *Gentlemen:* I am not given to speech-making. I am a man of few words, and very timid. Really, Dr. Highsmith, the retiring President, embarrasses me very much. I can not respond to such words.

I will promise you to rule with justice and with all the honor that is born in me with my Virginia blood and North Carolina cultivation, and I will try not to disappoint you, in any particular. I am going to give you the very best that is in my whole manhood, and will try to make the meeting of 1910—not as good as some others, perhaps—but one of which we shall not be ashamed.

I wish to thank you most heartily for the honor, which I did not expect, and which I thought was a jest at first.

I am sorry there are so few members present. (Applause.)

Sixth Annual Session of the House of Delegates of the Medical Society of the State of North Carolina

BATTERY PARK HOTEL,

ASHEVILLE, N. C., June 15, 1909.

The House was called to order by the President, Dr. J. F. Highsmith. First in order was the roll-call by districts and counties, after which was a recess of five minutes to elect delegates to represent districts. After election of representatives the house was again called to order, and the President requested the Secretary to call the districts in their order, and they responded with the names of the members elected to represent them.

1st Dist.—Dr. Oscar McMullan.
2d Dist.—Dr. B. L. Long.
3d Dist.—Dr. L. B. Evans.
4th Dist.—Dr. M. E. Robinson.
5th Dist.—Dr. R. W. Palmer.
6th Dist.—Dr. R. H. Lewis.
7th Dist.—Dr. E. C. Register.
8th Dist.—Dr. Chas. W. Moseley.
9th Dist.—Dr. A. A. Kent.
10th Dist.—Dr. W. R. Kirk.

It was moved and carried that the Nominating Committee come together immediately after the present meeting and decide upon time of second meeting. Dr. Wharton then proposed the name of Dr. Thomas E. Anderson, of Statesville, for election to honorary membership. After some discussion as to method of election the names of Drs. Henry Tull, A. J. Robinson, and I. W. Faison, were also proposed for honorary membership. The vote was taken and carried unanimously.

Dr. Kent then offered an amendment to articles IX and XI of the and By-laws, as follows:

GENTLEMEN:—At last year's meeting, 1908, I read for your consideration an amendment to that part of the Constitution presented in Articles IX and XI. I propose that amendment be made in Article IX, section 1, line 2, by inserting after the word "elected" and before the word "by,"

the words "by the members of the Society in general meeting"; and in section 3, line 2, by inserting after the word "elected" and before the word "by," the words "by the members of the Society in general meeting."

Article XI, in line 7, by inserting after the word "Society" and before the words "a majority," the words "present and voting."

The question was then brought up as to whether the members of the Board of Medical Examiners, the Board of Health and the Board of Examiners for Nurses, should be elected at a general meeting or before the House of Delegates.

Dr. Kent said in part:

Mr. President and the House of Delegates:—I offered this amendment last year after we had had considerable contention over this question of how the Board of Medical Examiners should be elected, whether by the House of Delegates or by the members of the Society as a body. After we had fought it out pretty thoroughly it was finally agreed upon that the Board of Medical Examiners should be elected by the general meeting as it had been done in the past, and in order to guard against any future misunderstanding or wrangling over this question as to what body should elect the Board of Medical Examiners and the other important Boards that were to be elected, I have offered this amendment. As you see, the articles of the Constitution do not say how they shall be elected, and the question of amendment grew out of it, and I offer this amendment, making the wording such that there could not be any future misunderstanding about it. The law of North Carolina provides that they shall be elected by the members of the Society, and it is to avoid any future contention concerning this that I have offered this amendment."

Dr. Taylor moved, and this motion was seconded, that the proposed amendment to article IX of the Constitution be adopted.

Dr. Crowell was in favor of election by House of Delegates, and said in part:

Personally, it makes but little difference to me how these men shall be elected. In the first place, the State allows delegates of this Society the power of electing these officers. This law does not tell how we shall elect these men, but it is left entirely to the Society as to how they shall be elected. This Society has seen fit to elect all its officers by the House of Delegates until last year, and because of some dissatisfaction on the part of some of the members who thought they were not having a fair showing, they thought it wise to pacify those who opposed it by giving to the general body the right to elect the State Board of Medical Examiners. I do not believe that it is illegal to elect them by the House of Delegates, because the State did not say how this should be done, but left it entirely to the State Society. Previous to last year they had been

electing these officers as they had been electing all other officers of the State Medical Society. It is only a matter of the wishes of the Society. I have no objection personally to the election being in the Society as a whole, but I do not believe it is wise, for the simple reason that if we, the physicians of Charlotte, saw fit to elect a set of men as a Board of Medical Examiners, I would defy almost the State of North Carolina to defeat the line of candidates that we would get out. Why, Asheville, Raleigh, Winston, Greensboro, or High Point could do the same thing.

The Society has grown wonderfully since the organization of the House of Delegates. Look at the papers read, see how much it has grown, how much more interest is taken, how many more physicians attend the Society meetings, because the interest of the State meeting is in the heart of the county meeting. The county meeting is a part of it, and they send their delegates to represent every part of the country. Take the fellows who come here, every one is looking out for his section of the country. The Society is in better shape to-day than it has ever been. This Society is organized after the manner of the American Medical Society, and I believe is one of the best plans we have. The Society has the right to elect its State officers in any way they see fit. The State has left it to them, and has not designated to this Society how these officers shall be elected. Personally speaking, I think the House of Delegates should have this right.

After further discussion, both for and against this amendment, a vote was taken, twenty-seven votes being cast for the amendment and ten votes against it.

After the amendment had been adopted, D.. Williams, of Guilford County, arose and addressed the President, saying that he had been instructed as representative of his district to vote for that amendment, although he was opposed to it and had simply carried out the instructions. The respresentative of Gaston County was also opposed to the amendment adopted.

Motion was made to adjourn the meeting, but on vote being taken it was decided to conclude all business during the afternoon.

The question of the second amendment to the Constitution, that contained in Article XI, was then brought before the House by Dr. Kent. He said:

A majority of all the members of the Society means a majority of all the County Medical Societies. We should have a practicable referendum, so that if this body sees fit to refer any question to it, it could do so here and now, but as it reads, it could not do it, because we have never had all the members present. I wish to make it practicable by saying that "a majority of the members present and voting" shall constitute a

referendum body, that is, the new wording would make it read that way. If the general body, by a two-thirds majority, sees fit to ask that any question be taken from the House of Delegates it should be able to act upon it then and now.

Dr. Crowell expressed his opinion that this was perfectly practicable, reasonable and right, and the representative from Cumberland made motion to sustain Dr. Kent in this amendment. The amendment was opposed by Dr. Taylor, but on vote being taken it was found that thirty were in favor of the amendment and seven opposed.

Both of the proposed amendments, receiving more than a two-thirds vote, were adopted.

Dr. Parrott then addressed the President and called the attention of the delegates to a question which he had been instructed by his County Medical Society to bring before the House of Delegates, namely:

To make motion that the State Board of Medical Examiners be requested to examine all prospective applicants for license on primary branches when they have satisfactory evidence from a medical college that these branches have been creditably passed by them. The County Society did not instruct me to vote for it; they only wanted the matter brought up.

The question was then open to discussion, and after vote being cast it was found to be almost unanimously opposed, and the vote was not carried.

Report of the Secretary was then read, and on motion of Dr. J. H. Williams, there was an unanimous vote for its publication.

REPORT OF SECRETARY.

Asheville, June 15, 1909.

Mr. President and House of Delegates:—Another year has passed; we come together to take stock, to render an account of our stewardship, to declare an annual dividend, to elect new officers, to consult together and get our bearings for another year's work as a body of organized men, working together for the good of humanity and the advancement of medical science in North Carolina.

Just how much has been accomplished during the year to raise the

medical profession in the esteem of the public we can not say. As a profession we have done what we could, rather than what should have been done. Our enthusiasm has been depressed by the wisdom, or lack of wisdom, on the part of our State Legislature.

In my last annual report I deprecated the idea of the profession going into politics, but I did say that if we ever attain the ends which we recognize are best for the public, we would have it to do. Personally, I am of that opinion still. The time has come in the history of North Carolina when the medical profession has a duty to perform other than to answer the call of the sick. Our mission is one to humanity, and the public interest can better be conserved in health than in sickness.

We should be so thoroughly organized that our influence would be felt in all matters pertaining to the public welfare. As a profession we are not selfish. All of us appreciate the fact that we have a public service to render. Our object is not simply to live from the misfortunes of our fellow-man. We are willing to exercise our office as physicians, as the custodians of the public in a manner that will redound to their happiness, in the suppression of preventable diseases. How well we succeed depends upon how thoroughly we appreciate our position, and to the end, the greatest good to the greatest number, maintain our organization intact.

At the 1908 meeting of this body we had 1,046 active members. To-day we have 1,067. Your Secretary has not been less industrious, but he has not had the hearty cooperation of the county secretaries necessary to growth.

At the 1908 session there were 87 county reports in hand; this year I have 79, in the face of my repeated calls for these reports. Were it my prerogative, I would say, let us employ a man to go into each county in the State and impress upon the physicians their duty as citizens and the importance of maintaining a close organization.

The feeling that medicine and public interest are not compatible is on the wane. I believe that the medical profession is waking up to the necessity of greater activity in public life.

We have come to realize the fact that the medical profession does not receive the proper recognition from our law-making bodies to which it is justly entitled, but we must admit that we are, to a large extent, responsible for this.

Our law-makers trifle with us, and practically say to us, you have no political standing, and it seems to matter not whether this applies to a bill affecting the practice act, or a matter of public health. The mere fact that it is a medical bill is sufficient cause for a careless consideration, if not a positive opposition.

Let us take the case of the osteopaths, who came prepared to make

an aggressive fight. It is surprising to note the men of apparent intelligence who were prepared to give them all the rights and privileges of practicing the art of healing upon examination by their own board, even when the bill granting the rights and privileges exempting them from doing anything of a surgical nature, administering drugs, or caring for contagious diseases. To put it plainly, they ask to be exempt from doing anything that requires education, skill, danger or brains.

With this experience staring us in the face, is it not time for us, individually and collectively, to assert ourselves? I do not claim that it is necessary for the physician to go actively into politics or feel that he must be a candidate for office, but be a citizen even though he be selfish enough to say he is doing it in the interest of his profession or the public health.

Let the politicians know that we have had the breath of life blown into our nostrils, and that artificial respiration is not absolutely necessary. It is then, and not until then, that they will begin to recognize us and the public interest.

I will not detain you with further suggestions. Suffice it to say, we are a class unto ourselves. We know our duty, and that no other class can do what we can.

I would remind you that there is one delegate to be elected to the House of Delegates of the American Medical Association for two years, also that you are to elect two members from this Society to serve two years on the Examining Board for Trained Nurses.

Fraternally submitted, D. A. STANTON, *Secretary.*

The President then announced that the matter of election of two Examiners for the Nurses' Examining Board would come before the general body next day at 11 o'clock.

The meeting then adjourned until the next morning at 9:00 o'clock.

ASHEVILLE, N. C., June 16, 1909.

The House being called to order by the President, Dr. J. F. Highsmith, motion was made and carried that roll-call be suspended. The President then called for report of the Nominating Committee, and the names of the officers-elect were read by Dr. Long. Motion was made and carried that the report of the Nominating Committee be accepted.

The question was then brought up as to the time and place

of the next meeting. Dr. Kent suggested that the third Tuesday in June be the date of meeting. This date was suggested in order not to conflict with the examinations of the Board of Medical Examiners June 10th. Wilmington was named as place of meeting. There seemed to be some confusion on the part of the delegates from New Hanover, according to Dr. Wood, as to whether, when Wilmington was suggested as place of meeting they were expected to go to Wilmington or to Wrightsville Beach, Wrightsville Beach being in close proximity to Wilmington. Dr. Wood was in favor of the meeting being held at Wrightsville Beach. Dr. Kent then brought out the point that as heretofore the doctors of Wilmington had taken the trouble to entertain them he thought it best to leave it to the doctors of Wilmington whether the meeting should be held at Wilmington or Wrightsville, but the delegates present voted in favor of Wrightsville Beach. The question as to whether there would be sufficient number of tables and chairs at Wrightsville Beach for examinations was brought up by Dr. Evans, and was replied to by Dr. Wood, who said they would be able to make them there if they did not have them on hand already.

A motion substituting Wrightsville Beach in the place of Wilmington as place of meeting, and the third Tuesday in June as date of meeting, was voted on and carried.

The Secretary was then instructed by the President to call for reports from the councilors of the different districts. The following reports were given:

First District, Dr. Oscar McMullan: "In making the report from our district I will say that about all we have done since the new organization went into effect has been to organize societies in the different counties. Some of them we did not succeed in organizing on account of the sparse population which made it impossible to form a society. Camden and Pasquotank did not have a sufficient number of physicians to organize societies of their own, but so far as we

have been able to go the soieties which have been constituted are doing fairly well and take a great deal of interest in their work."

Second District, Dr. Whitaker not being present, Dr. Parrott gave the following report: "Like Dr. McMullan said, we are holding our own. Generally speaking we are gaining a little as the doctors come in, and when I discontinued my work as Councilor the societies were all in pretty good shape and were doing very well. Chowan Society in particular is doing well."

Third District, Councilor Dr. F. H. Russell not present. No report.

Fourth District, Dr. E. T. Dickerson: "The work in my district is very nearly where I found it. Nash and Edgecombe counties do not get together well. They say they have no convenient place for meeting. My object now after failing to organize societies in these counties separately is to combine the two. Traveling facilities, however, make it inconvenient for them to meet. By combining the two in Rocky Mount we might succeed in getting an influential society in the two counties. That would be in the spirit of the new movement of the American Medical Association.

"We hope to go on with this plan immediately and have one more influential society added to the district. Wilson and Johnston counties are very prosperous, and there are others equal to these in the district."

Fifth District, Dr. J. F. Highsmith: "All the counties are organized into Medical societies, and we are showing progress in the way of advancement. Several of the counties have instituted post-graduate work as outlined by Dr. Green. We have only one meeting a month, but have had good papers and are doing the best we can under the circumstances. We have so much ground to cover to keep up with this course we find it impracticable. In this district we have organized the fifth Medical Association and several of the counties in the district have been working under this

movement, but on account of railway facilities it is right hard to have a meeting without losing more than one day from their work. The eastern counties, however, are doing good work under this movement. So I think I can safely report that we are on the up-grade to improvement."

Sixth District, Dr. H. A. Royster, not present.

Seventh District, Dr. C. M. Strong, not present.

Eighth District, Dr. J. B. Smith: "The county societies of this district are in good working order and there is some improvement in them. A few counties, including Ashe and Alleghany, have only two physicians and they claim it is impossible to organize."

Ninth District, Dr. A. A. Kent: "I am not the Councilor of this district, but Dr. Taylor being absent there are some things so gratifying to me that I want to mention them. The Ninth District stretches across the Blue Ridge to the Tennessee line, including the counties of Watauga and Mitchell, of which I wish to make special mention. Five years ago it would have been positively out of the question to enforce the law as to legal practitioners in either one of these counties because of the fact that there were not enough licensed physicians in either one of these counties to supply the requirements of the people. The law had to go as a dead letter until they were properly supplied with licensed physicians. Some two years ago Watauga became sufficiently supplied with licensed physicians so that they felt they could come up to the line and require those illegal practitioners should go out. Five years ago there were only one or two, possibly three, legal practitioners in Mitchell County and they were men who had not been licensed by examination but by reason of long practice, but the bulk of them were men who were practicing without license. Doctor Peterson told me yesterday that now they have eight or ten licensed physicians in Mitchell County who are licensed by examination, and that as they now have plenty of licensed doctors properly qualified to serve all their needs they are going to insist

upon all the laws being enforced in their county. I consider this a good showing for these two counties. If the rest had pursued the same course as these two counties it would have been better for them."

Tenth District, Doctor J. A. Burroughs, not present.

The reports of the districts being given the Secretary expressed his approbation. He said: "Mr. President, I wish to say that the Councilors reports are very, very gratifying to me. They are the best reports we have had since I have been Secretary. No one can hold the position of Secretary of the Medical Society of North Carolina for more than one year without finding out that the responsibility rests in a great measure upon the Councilors. Their duty is indeed a very responsible one. From their reports I believe they are appreciating the fact and I want to say that it is very gratifying to me, and I hope this year, since you have seen fit to recommend my reelection, to have your hearty cooperation. The Society is growing stronger all the time—numerically and intellectually—and we want to still grow and grow until we are known all over the United States as one of the best State societies in America."

The following amendment to the Constitution was offered by Dr. J. T. Burrus at the 1908 session of the State Society, "An amendment offered to amend Art. VIII, sec. 3, of the Constitution, which makes it read as follows":

> The officers of this Society shall be elected by ballot at a conjoint session on the morning of the third day of the annual session, a majority of votes cast being necessary to elect. No person shall be elected to any office who is not in attendance upon the annual session, and who has not been a member of this Society for the past three years. Any nominee for the office of President shall have been an active member of this Society for five years, including the year of his election, shall have attended two of three meetings immediately preceding his nomination, including the meeting at which he is nominated, and shall be a member in good standing at the time of his nomination.
>
> (Signed) Dr. J. T. Burrus.

In accordance with the By-laws, that all amendments to the Constitution lie over for one year before action is taken

by the House of Delegates the above was read by the secretary. After a free discussion of the proposed amendment Dr. Parrott moved that the amendment be not adapted. The motion was seconded, and the vote was unaminous that the resolution be not adapted.

The meeting then adjourned subject to the call of the President.

THURSDAY NOON, June 17th.

The House of Delegates was called to order by the President. President Highsmith in the Chair. On motion of Dr. Harris the following physicians were elected as delegates to the United States Pharmacopœal Convention:

Wm. DeB. MacNider, Chapel Hill.
W. L. Dunn, Asheville.
E. J. Wood, Wilmington.

Resolved, That the Scientific Sections of the Society be divided into the Usual Section in one hall and a Special Section on Surgery in another hall, on the second day only.

Dr. J. Howell Way, an honored Ex-president of the Society, being present as a visitor in the House of Delegates, by permission addressed the House relative to the forthcoming ninth decennial revision of the U. S. Pharmacopœia, referred to the fact that two decades past, in 1890, this body was honored in having as its representative, not only in the National Pharmacopœal Convention, but as a member of the Select Committee which actually revised the Pharmacopœia, the late Dr. Thos. F. Wood. He also noted the fact that in the revision of 1900 this body was not represented by any one, and urged that this was an oversight which should not with proper credit and respect for ourselves be permitted to occur again. He then offered a resolution designating Drs. W. L. Dunn, of Asheville; Wm. DeB. MacNider, of Chapel Hill, and Ed. Jenner Wood, of Wilmington, as a committee of three to represent the Medical Society of North Carolina in

the coming Ninth Decennial Revision of the U. S. Pharmacopœia. A number of questions were asked the doctor by interested members, after which the resolution as offered by Dr. Way was unanimously adopted.

MR. PRESIDENT:—We, your committee appointed to audit the books of the Treasurer, desire to submit the following report:

Books show amount on hand last meeting	$2,392.02
Amount received to date	2,107.24
Making a total of	$4,499.26
Total disbursements to date	2,577.17
Leaving a balance in hand of to turn over to his successor.	$1,922.09

(Signed) THOS. E. ANDERSON.
M. BOLTON.

There being no further business the House of Delegates adjourned sine die.

J. F. HIGHSMITH,
President.

D. A. STANTON, Secretary.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

J. C. RODMAN, M.D., PRESIDENT, WASHINGTON.
BENJ. K. HAYES, M.D., SEC.-TREAS., OXFORD.

J. C. Rodman, M.D., Washington, Chemistry and Diseases of Children.
L. B. McBrayer, M.D., Asheville, Surgery.
W. W. McKenzie, M.D., Salisbury, Anatomy and Pathology.
H. H. Dodson, M.D., Greensboro, Practice of Medicine.
John Bynum, M.D., Winston-Salem, Obstetrics and Gynecology.
J. L. Nicholson, M.D., Richlands, Physiology and Hygiene.
Benj. K. Hays, M.D., Oxford, Materia Medica and Therapeutics.

The next annual meeting will be held at Wrightsville Beach, June 6, 1910.

MEDICAL LICENSE.

An applicant for license to practice medicine in North Carolina must appear before the Board of Medical Examiners in regular session and present a certificate of good moral character, attested by two persons

known to the Board, a diploma from a medical college in good standing or a license from some other State, and must deposit ten dollars with the Secretary of the Board. He will then be examined upon the following branches of medicine: Anatomy, Physiology, Surgery, Pathology, Medical Hygiene, Chemistry, Pharmacy, Materia Medica, Therapeutics, Obstetrics, and the Practice of Medicine.

He must make an average of eighty per cent upon all the branches, and he must not fall below thirty-five per cent upon any one branch.

TEMPORARY LICENSE.

An applicant for temporary license must appear before two members of the Board of Medical Examiners and present a certificate of good moral character, a diploma from a medical college in good standing, and must pay a fee of five dollars. He must then stand a satisfactory oral examination.

A temporary license continues in force only until the next regular meeting of the Board, and is never granted but once to the same applicant.

REQUISITION FOR RECIPROCITY.

1. The applicant must have a diploma from a medical college requiring a three-years course of study for such degree.

2. He must have license from a State Board of Examiners requiring the same per cent as this State, which is 80.

3. He must present a sworn affidavit from two practicing physicians as to his professional standing in his community, the burden of proof resting upon the applicant.

4. He shall attend the meeting of the Board at the time of application and make the same in person.

5. He shall pay a fee of ten dollars for such license.

6. He must not have failed before the North Carolina Board.

7. He must have been in actual practice for five years in the State from which he comes.

LAWS OF NORTH CAROLINA RELATIVE TO THE PRACTICE OF MEDICINE.

(Revisal of 1905.)

Sec. 4494—*Board of Examiners to elect officers.*—The Board of Medical Examiners are authorized to elect all such officers, and to frame all such by-laws as may be necessary, and in the event of any vacancy by death, resignation or otherwise, of any member of said Board, the Board, or a quorum thereof, is empowered to fill such vacancy.

Sec. 4495—*Board of Examiners, Meetings of.*—The Board of Medical Examiners shall assemble at the same time and place when and where the Medical Society assembles, which Society shall assemble at least once in every year at such time and place as the said Society at its

next preceding meeting shall have fixed; and the said Board shall remain in session from day to day until all applicants who may present themselves for examination within the first five days after its meeting shall have been examined and disposed of: *Provided*, that the Board may at its discretion meet not more than one week before the said Society, but always in the same place; and that one additional meeting in each year may be held at some suitable point in the State, if deemed advisable.

Sec. 4498.—*Applicants for License Examined.*—It shall be the duty of the said Board to examine all applicants who shall exhibit a diploma, or furnish satisfactory proof of graduation from a medical college in good standing requiring an attendance of not less than three years, and supplying such facilities for clinical instruction as shall meet the approval of the said Board, for license to practice medicine or surgery, or any of the branches thereof, on the following branches of medical science: Anatomy, Physiology, Surgery, Pathology, Medical Hygiene, Chemistry, Pharmacy, Materia Medica, Therapeutics, Obstetrics, and the Practice of Medicine, and if on such examination they be found competent, to grant to each applicant a license or diploma, authorizing him to practice medicine and surgery, or any of the branches thereof. Five members of the Board shall constitute a quorum and four of those present shall be agreed as to the qualification of the applicant: *Provided*, that the requirement of three years' attendance at school shall not apply to those graduating prior to January first, nineteen hundred: *Provided further*, that license or other satisfactory evidence of standing as a legal practitioner in another State shall be accepted in lieu of a diploma and entitled to examination.

CHAPTER 890, PUBLIC LAWS OF NORTH CAROLINA.

AN ACT TO AMEND SECTION 4498 OF THE REVISAL OF 1905, BY ADDING A SUBSECTION MARKED (A) THERETO FOR ENLARGING THE POWERS OF THE BOARD OF MEDICAL EXAMINERS IN GRANTING LICENSE TO APPLICANTS TO PRACTICE MEDICINE.

The General Assembly of North Carolina do Enact:

SECTION 1. That section four thousand four hundred and ninety-eight of The Revisal of one thousand nine hundred and five be amended by adding a subsection marked (a) "That the Board of Medical Examiners shall in their discretion issue a license to any applicant to practice medicine and surgery in this State without examination if said applicant exhibits a diploma or satisfactory proof of graduation from a medical college in good standing requiring an attendance of not less than three years and a license issued to him to practice medicine and surgery by the Board of Medical Examiners of another State."

SEC. 2. This act shall be in force and effect from and after its ratification.

In the General Assembly read three times and ratified, this the 11th day of March, A. D. 1907.

(Revisal of 1905.)

Sec. 4499.—*Temporary License.*—To prevent delay and inconvenience, two members of the Board of Medical Examiners may grant a temporary license to any applicant who may comply with the requirements as to graduation prescribed in the preceding section, and make report thereof to the next regular meeting of the Board: *Provided*, such temporary license shall not continue in force longer than the next regular meeting of the Board, and such temporary license shall in no case be granted after the applicant has been refused a license by the Board of Medical Examiners.

Sec. 4501.—*License Fee.*—The Board shall have power to demand of every applicant thus licensed the sum of ten dollars before issuing a license or diploma, and the sum of five dollars for each temporary license, to be paid to the Secretary of the Board.

Sec. 4503.—*Board May Rescind License.*—The said Board shall have the power to rescind any license granted by them when upon satisfactory proof it shall appear that any physician thus licensed has been guilty of grossly immoral conduct.

EXAMINATION QUESTIONS ASKED BY THE BOARD OF MEDICAL EXAMINERS AT ASHEVILLE, JUNE, 1909.

MATERIA MEDICA.

By Dr. Benj. K. Hays, Oxford.

1. Name the organs influenced by (a) a cholagogue; (b) a sialogogue; (c) an oxytoxic; (d) a diaphoretic; (e) a mydriatic.

2. Give the official name, using the correct Latin terminations, of (a) Epsom salts; (b) Dover's powder; (c) Calomel; (d) Salol; (e) Fowler's solution; (f) Hoffman's anodyne; (g) Cod liver oil; (h) Sulphonal; (i) Aristol; (j) Spirit of nitroglycerine.

3. Define a tincture. Name four of the most important official tinctures and state per cent strength of each.

4. Give the dose of a (a) apomorphinæ hydrochloridum; (b) Arseni trioxidum; (c) Chloralum hydratum; (d) Atropinæ sulphas; (e) Hydrargyri chloridum corrosivum; (f) Strychninæ sulphas; (g) Hexamethylenamia; (h) Tinctura aconiti; (i) Tinctura gelsemii; (j) Glandulæ suprarenalis sicca.

5. Give specific treatment for diphtheria, and state (very briefly) how the remedy is obtained.

6. Give specific remedy for myxodema.

7. Write a prescription for dysentery.

8. Name four drugs which might be useful as local applications in tonsilitis. (Official remedies only.)

9. Name five agents (not official drugs) which frequently cause poisoning.

10. Give specific antidote for poisoning by (a) Bichloride of mercury; (b) Arsenic; (c) Iodine; (d) Opium. (Emetics, stomach pump, etc., being taken for granted.)

CHEMISTRY AND DISEASES OF CHILDREN.

By Dr. John Rodman, Washington.

1. A patient is found with a temperature of 104 degrees Fahrenheit. Express this in Centigrade.

(b) Express the equivalent of one grain (decimally) in grams.

2. Methyl alcohol, give (a) common name; (d) uses; (e) dangers.

3. Define combustion, and state what takes place when coal is burned.

4. What is fractional distillation?

5. Name four mineral acids used in medicine and give formula of each.

1. Ophthalmia neonatorum, (a) Etiology and symptoms; (b) Crede method of prophylaxis; (c) Treatment, general, medicinal.

2. Describe Kernig's symptoms of cerebro-spinal meningitis.

3. Give diagnosis and treatment of acute intussusception.

4. Describe the eruptions in (a) chicken pox; (b) smallpox; (c) measles; (d) scarlet fever.

5. Give most common complication in scarlet fever and treatment of same.

OBSTETRICS AND GYNECOLOGY.

By John Bynum, M.D., Winston-Salem.

1. Describe the uterus, its normal position, its relation to other organs and means by which it is held in place.

2. Give symptoms and treatment of placenta prævia.

3. What is plegmasia alba dolens? At what time does it occur? What is the treatment?

4. What are the danger signals of impending eclampsia? Give treatment of eclampsia at 8th month of pregnancy.

5. Define abortion, miscarriage, and premature labor. Give treatment of an incomplete abortion.

6. Give the etiology and treatment of an acute general cystitis.

7. Define plastic operations as applied to gynecology.

8. What is the differential diagnosis between ascites and ovarian cyst?

PRACTICE OF MEDICINE.

By H. H. Dodson, M.D., Greensboro.

1. Give differential diagnosis between Peptic Ulcer and Carcinoma of stomach.

2. Give physical signs in Croupous Pneumonia—in the stage of solidification and differentiate from Pleurisy with effusion.

3. In Aortic and Mitral Insufficiency, where is the murmur heard most distinctly and its direction of transmission?

4. Give Etiology of Cerebro-Spinal Meningitis, (epidemic) and characteristic symptoms.

5. Define Arterio-Sclerosis, and give chief causes producing it.

6. Give symptoms of hemorrhage in Typhoid Fever and treatment.

7. What is the chief cause of Locomotor Ataxia? Give symptoms briefly in initial and ataxic stages.

8. What conditions are found in examination of urine, and circulation in chronic Interstitial Nephritis?

9. Give briefly treatment for Acute Articular Rheumatism.

10. Write one prescription for local treatment of Erysipelas.

SURGERY.

By L. B. McBrayer, M.D., Asheville.

1. What is pathology and treatment of paronychia?

2. What is pathology and treatment of osteomyelitis of tibia?

3. Describe operation for radical cure of oblique inguinal hernia.

4. Describe operation for acute catarrhal appendicitis.

5. How would you treat a patient who had suddenly ceased to breathe while administering chloroform?

6. Describe method of preparing hands for a surgical or obstetrical examination.

7. Why do we have abscess of the liver following purulent appendicitis?

8. What is the rule as to fixation of joints above and below a fracture?

9. How do you differentiate between chancre and chancroid? What is period of incubation for each, treatment?

10. Describe operation for talipes equinovarus.

11. For the diagnosis of what disease is the Wasserman reaction used?

(You are expected to answer only 10 questions.)

PHYSIOLOGY AND HYGIENE.

By J. L. Nicholson, M.D., Richlands.

1. What evidence is there that the secretion of urine is not a simple process of filtration from the blood? State the probable nature of the stimulation controlling the secretion of urine.

2. Explain the structure and use of each of the three coats of blood vessels.

3. Name the principal centers of organic function situated in the medulla oblongata.

4. Give the teachings as to the (a) origin, (b) functions, (c) variations in number of leucocytes.

5. Give the functions of carbohydrate foods.

6. Discuss Enzymes: Giving (a) their general character, (b) six principal ones, where chiefly found, and their respective actions in the process of digestion.

7. What is the significance of (a) nitrates and (b) nitrates found in drinking water?

8. Give the prophylaxis of uncinariasis.

9. Discuss municipal supervision of a city's milk supply.

10. Discuss the contamination of air in dwellings, consequent upon improper lighting, heating, and ventilation.

ANATOMY.

By W. W. McKenzie, M.D.

1. Name the bones of the head, and describe the frontal bone.

2. Where does abdominal aorta commence and where does it terminate? Name its branches.

3. Name the principal lobes of the brain and the fissures dividing them.

4. Give the origin and function of the trigeminus (5th cranial) nerve, and name the divisions of the same.

5. With what bones does the astragulus articulate.

6. Describe the stomach, give its average size, attachments, regional location, gross structure, blood and nerve supply.

7. Give origin, insertion, and action and nerve supply of the following muscles: Deltoid, Soleus, and Quadratus Lumborum.

8. Give the surgical anatomy of femoral hernia.

9. Locate and describe the ovaries.

10. Give a histologic description of an artery.

11. Describe the rectum.

12. Describe the Iris, give its blood and nerve supply.

(Answer only 10 questions.)

NORTH CAROLINA MEDICAL EXAMINERS.

The State Board of Medical Examiners which met in Asheville, June 9, completed its work and announced the successful candidates before the State Medical Society June 15. There were a total of 120 applicants, of whom 96 were granted license. Included in this number were one woman and eight negroes. The class was led by Branch Craig, of Salisbury, who made an average grade of 95 6-7, with Hubert Benbury Haywood, Jr., of Raleigh, only one-seventh of a point below him, making a grade of 95 5-7. Hubert Gudger, of Asheville, came third with a grade of 93 5-7. The successful applicants were:

William A. Johnson, Reidsville.
Vernon L. Andrews, Mount Gilead.
Joseph Collier Ray, Raleigh.

David Russell Dixon, Rocky Mount.
Fred. G. Sigmon, Spencer.
Thomas W. Long, Garysburg.
N. D. Morton, Jr., Bullock.
O. E. Underwood, Ernest.
Julian B. Sutton, Elk Park.
J. Frank Cranford, Davidson College.
C. M. Lentz, Albemarle.
H. P. Harris, Wake Forest.
Charles R. Rullel, Granite Falls.
Thomas J. Tudor, Mount Gilead.
K. C. Moore, Wilson.
G. D. Moose, Mt. Pleasant.
Edward C. Register, Jr., Georgetown, S. C.
J. C. Knight, Clarksville, Ga.
E. B. Alford, Greensboro.
R. W. Crawford, Rocky Mount.
R. A. Vaughn, Vaughn.
W. B. Chapin, Pittsboro.
B. B. Lloyd, Chapel Hill.
W. A. Whitfield (colored), Stokes.
P. W. Miles, Milton.
R. G. Rosser, Broadway.
J. M. McMillan, Star.
J. N. Hill, Murphy.
W. C. Morrow, Andrews.
C. A. Shore, Raleigh.
T. D. Crouch, Taylorsville.
N. B. Adams, Murphy.
Bessie Violet Puett, Dallas.
H. B. Haywood, Jr., Raleigh.
C. F. Shafer, Boonville.
W. F. Cole, Rockingham.
Thos. O. Coppedge, Castalia.
Wm. C. Tate, Saginaw.
Julian C. Davis, Clyde.
D. C. Absher, Obids.
Fred. B. Spencer, Swan Quarter.
L. C. Swindell, Kinston.
Reuben G. Tuttle, King.
B. C. Johnson, Ingold.
Claudius T. Poole, Ellerbe.
Benj. E. Early, Taylorsville.
Asa Thurston, Taylorsville.
G. H. Croom, Burgaw.
James J. Withers, Davidson College.
L. V. Dunlap, Ansonville.

John M. Maness, Rockingham.
Foy Roberson, Chapel Hill.
John M. Thompson, Graham.
Julius B. Surles, Dunn.
W. H. Braddy, Washington.
J. D. Barnes (colored), Portsmouth, Virginia.
M. W. Ball, LaGrange.
John Thomas Buff, Caser.
C. S. Barker, Trenton.
James A. Tinsley (colored), Henderson.
James L. Mansfield, Guilford College.
S. H. Yokely, Thomasville.
Robert S. McElwee, Statesville.
O. B. Ross, Charlotte.
J. V. Howard, Kinston.
Edgar M. Long, Hamilton.
Ben F. Royal, Morehead City.
Hugh W. McCain, Waxhaw.
J. E. Dowdy, Winston-Salem.
Benj. F. Cliff, Asheville.
James A. Battle, Wilson.
John T. Wortham (colored), Raleigh.
W. P. Carter (colored), Reidsville.
William J. H. Booker (colored), Oxford.
Harold H. Cauble, Salisbury.
D. Humphrey, Lumberton.
James W. Vernon, Bushy Fork.
O. W. Shellem, Raleigh.
C. V. Orr, Judson.
J. D. Weatherly, Kernersville.
B. W. Page, Teacheys.
E. F. Long, Tobaccoville.
M. S. Gilliam (colored), Rocky Mount.
Fred Wharton Rankin, Mooresville.
Arthur Edward Riggsbee, Durham.
J. M. Buckner, Democrat.
Branch Craig, Salisbury.
Edward T. Gordon (colored), Raleigh.
A. W. Choate, Sparta.
Hubert Gudger, Asheville.
W. F. Coleman (colored), Raleigh.
Wm. A. Strowd, Chapel Hill.
M. T. Hickman, Hudson.
Walter Lee Swindell, Kinston.
Charles S. Eagles, Saratoga.
Charles R. Farmer, Elm City.
P. B. Killian, Hayesville.

REPORT OF THE BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA. SESSION OF 1909, ASHEVILLE.

Dr. B. K. Hays, of Oxford, Secretary of the Board of Medical Examiners of North Carolina, has been kind enough to send the following report:

There were 143 registrations—

13 obtained reciprocity
14 obtained limited license
1 withdrew
18 were rejected
97 passed a successful examination.

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COLLEGE STANDING.

Name of College.	Passed.	Rejected.
Columbus University	1	
Univ. Col. of Medicine, Richmond	14	
Tennessee Med.	1	1
Atlanta School of Med.	5	
Univ. of N. C.	12	1
Leonard Med. College	9	3
Jefferson	8	
North Carolina Medical	14	
Univ. of Nashville	0	2
Johns Hopkins	2	
Chat. Med.	0	3
P. & S., Baltimore	1	
Gate City Med. Tex.	0	1
Geo. Washington Univ.	1	
Univ. of Tenn.	0	4
Univ. of Md.	12	1 (1904)
Meharry	0	1
Univ. of Pa.	4	
Baltimore Med.	1	
Univ. of Louisville	1	
University of Georgia	1	1
University of the South	2	2
Woman's Med., Baltimore	1	
Med. College of Virginia	3	
Univ. of Michigan	1	
P. & S., Atlanta	2	
Knoxville Med.	0	2

MINUTES FOR THE MEETING OF 1909.

The Board of Medical Examiners of the State of North Carolina met in regular session at the Battery Park Hotel in Asheville on the night of June 8th, 1909, with the following members present: Dr. L. B. McBrayer, Asheville; Dr. W. W. McKenzie, Salisbury; Dr. H. H. Dodson, Greensboro; Dr. John Bynum, Winston-Salem; Dr. J. L. Nicholson, Richlands; and Dr. Benj. K. Hays, Sec. and Treas., Oxford. Dr. Jno. C. Rodman, President, was detained at home on account of sickness. Dr. J. L. Nicholson was elected President of the Board, pro tem., and served throughout the entire meeting.

Dr. L. B. McBrayer made a short talk of welcome, extending to the Board the courtesies of the city, and inviting the members to take a drive through Biltmore (at a time to be appointed).

It was decided to devote Wednesday morning to registration of applicants; Wednesday afternoon to a consideration of the claims of the applicants for limited license; and Wednesday night to the applicants for reciprocity. It was decided that Dr. Dodson's examination on Diseases of Children and Chemistry should be divided between Drs. Hays and Dodson, the former taking Chemistry and the latter Children. The following order of examinations was agreed upon, all examinations to be written except the practical part of Dr. Bynum's examination upon Obstetrics.

Anatomy, Thursday a. m.

Surgery, Thursday p. m.

Gynecology, Friday a. m.

Materia Medica and Chemistry, Friday p. m.

Physiology, Saturday a. m.

Practice of Med. and Diseases of Children, Saturday p. m.

This was later modified by putting up Materia Medica, Chemistry and Diseases of Children together on Friday p. m.

Applicants for limited license were granted an oral examination. Reciprocity was granted in one case on the ground of having done five years successful practice in a State whose requirements are the same as ours. In every other case reciprocity was granted upon individual merit. The rules of the Board in regard to reciprocity were changed, and will be published later.

Dr. J. L. Nicholson was elected President of the Board for the coming year.

There was a feeling on the part of the Board that the applicants were of a high order of serious-minded men who will become a valuable acquisition to the medical profession of North Carolina.

Name.	Address.	Year	College.
Absher, D. C	Obids, N. C	1909	University of Maryland.
Alford, A. E. B	Greensboro, N. C	1909	Columbus University.
Andrews, V. L	Mt. Gilead, N. C	1909	University College of Medicine, Va.
Adams, N. B	Murphy, N. C	1896	Tennessee Medical College.
Ball, M. W	LaGrange, N. C	1909	Atlanta School of Medicine.
Buckner, J. M	Democrat, N. C	1909	University of North Carolina.
Braddy, W. H	Washington, N. C	1909	University of North Carolina.
Booher, W. J. H	Oxford, N. C	1908	Leonard Medical College, Raleigh.
Barnse, J. D	Portsmouth, Va	1909	Leonard Medical College, Raleigh.
Battle, J. A	Wilson, N. C	1909	Leonard Medical College, Raleigh.
Barker, C. S	Trenton, N. C	1909	Jefferson Medical College.
Buff, John T	Casar, N. C	1908	North Carolina Medical College.
Cranford, J. F	Davidson College, N. C	1909	North Carolina Medical College.
Chapin, W. B	Pittsboro, N. C	1909	University of North Carolina.
Cole, W. F	Rockingham, N. C	1909	Johns Hopkins University.
Cauble, H. H	Salisbury, N. C	1909	North Carolina Medical College.
Coppedge, T. O	Castalia, N. C	1908	P. & S., Baltimore.
Crouch, T. D	Taylorsville, N. C	1909	North Carolina Medical College.
Croom, G. H	Burgaw, N. C	1909	North Carolina Medical College.
Choate, G. W	Sparta, N. C	1909	North Carolina Medical College.
Coleman, W. T	Raleigh, N. C	1909	Leonard Medical College.
Carter, W. P	Reidsville, N. C	1909	Leonard Medical College.
Craig, Branch	Salisbury, N. C	1909	University of Maryland.
Cliff, B. F	Asheville, N. C	1908	George Washington University.
Crawford, R. W	Rocky Mount, N. C	1906	University of Maryland.

NAME.	ADDRESS.	YEAR.	COLLEGE.
Dunlap, L. V	Ansonville, N. C	1909	University of North Carolina.
Dixon, D. R	Rocky Mount, N. C	1909	University College of Medicine.
Davis, J. C., Jr	Clyde, N. C	1909	Atlanta School of Medicine.
Daniel, B. E	Hagan, Ga	1909	Atlanta School of Medicine.
Dowdy, J. E	Winston-Salem, N. C	1909	University of Maryland.
Eagles, C. S	Saratoga, N. C	1909	University of North Carolina.
Farmer, C. R	Elm City, N. C	1909	Jefferson Medical College.
Gudger, Hubert	Asheville, N. C	1909	University of Pennsylvania.
Gordon, E. T	Raleigh, N. C	1909	Leonard Medical College.
Gilliam, M. S	Rocky Mount, N. C	1908	Leonard Medical College.
Hickman, M. T	Hudson, N. C	1909	University College of Medicine, Va.
Harris, H. P	Wake Forest, N. C	1909	University College of Medicine, Va.
Howard, J. V	Kinston, N. C	1909	University of Pennsylvania.
Humphrey, D. A	Lumberton, N. C	1909	North Carolina Medical College.
Haywood, Hubert	Raleigh, N. C	1909	University of Pennsylvania.
Hill, J. N	Murphy, N. C	1909	University of Louisville.
Johnson, B. C	Ingold, N. C	1909	University of North Carolina.
Johnson, W. A	Reidsville, N C	1907	North Carolina Medical College.
Knight, J. C	Clarksville, Ga	1909	P. & S., Atlanta.
Killiam, P. B	Hayesville, N. C	1900	P. & S., Atlanta.
Long, T. W. M	Garysburg, N. C	1908	University College of Medicine.

Lantz, C. M	Albemarle, N. C	1909	North Carolina Medical College.
Lloyd, B. B	Chapel Hill, N. C	1909	University of North Carolina.
Long, Edgar M	Hamilton, N. C	1909	University of Maryland.
Long, E. F	Tobaccoville, N. C	1909	Medical College of Virginia.
Moore, K. C	Wilson, N. C	1909	University of Michigan.
Morton, M. D	Bullock, N. C	1909	University College of Medicine.
Miles, P. W	Milton, N. C	1908	University College of Medicine.
McMillan, James M	Star, N. C	1909	P. & S., Atlanta.
McCain, H. W	Waxhaw, N. C	1909	Jefferson Medical College.
Maness, J. M	Rockingham, N. C	1909	University of North Carolina.
Morrow, W. C	Andrews, N. C	1909	Atlanta School of Medicine.
Mooresfield, J. L	Guilford College, N. C	1909	University of Maryland.
McElwee, R. S	Statesville, N. C	1909	University of Maryland.
Moose, G. D	Mt. Pleasant, N. C	1907	University of Maryland.
Orr, C. V	Judson, N. C	1909	Atlanta School of Medicine.
Puett, B. V	Dallas, Texas	1909	Women's Medical College, Baltimore.
Page, B. W	Teacheys, N. C	1909	North Carolina Medical College.
Poole, C. T	Ellerbe, N. C	1909	North Carolina Medical College.
Register, E. C., Jr	Georgetown, S. C	1908	Medical College, of Virginia.
Ray, J. C	Raleigh, N. C	1909	University College of Medicine, Va.
Russell, Chas. R	Granite Falls, N. C	1909	University College of Medicine, Va.
Rosser, R. G	Broadway, N. C	1909	North Carolina Medical College.
Royal, Benj. F	Morehead City, N. C	1909	Jefferson Medical College.
Roberson, Foy	Chapel Hill, N. C	1909	Jefferson Medical College.
Ross, O. B	Charlotte, N. C	1909	University of Pennsylvania.
Riggsbee, A. E	Durham, N. C	1909	University of North Carolina.
Rankin, F. W	Mooresville, N. C	1909	University of Maryland.
Surles, J. B	Dunn, N. C	1909	Jefferson Medical College.
Stroud, W. A	Chapel Hill, N. C	1909	University of North Carolina.

Name	Address.	Year.	College.
Spencer, F. B	Swan Quarter, N. C	1909	University of North Carolina.
Swindell, W. L	Scranton, N. C	1908	Baltimore Medical College.
Shellem, O. W	Raleigh, N. C	1909	North Carolina Medical College.
Shore, C. A	Raleigh, N. C	1907	Johns Hopkins University.
Shafer, C. F	Boomville, N. C	1909	Medical College of Virginia.
Sutton, J. R	Elk Park, N. C	1904	University of the South.
Swindell, C. L	Kinston, N. C	1909	University of Maryland.
Sigmon, F. G	Spencer, N. C	1909	University College of Medicine, Va.
Tudor, T. J	Mt. Gilead, N. C	1909	University College of Medicine, Va.
Tate, W. C	Saginaw, N. C	1908	Tennessee Medical College.
Thompson, J. M	Graham, N. C	1909	University of North Carolina.
Tuttle, R. G	King, N. C	1909	North Carolina Medical College.
Tinsley, J. A	Henderson, N. C	1909	Leonard Medical College.
Thurston, Asa	Taylorsville, N. C	1909	University of Maryland.
Underwood, O. E	Ernest, N. C	1909	University College of Medicine, Va.
Vaughan, R. A	Vaughan, N. C	1909	University College of Medicine, Va.
Vernon, J. W	Bushy Fork, N. C	1909	Jefferson Medical College.
Withers, J. J	Davidson, N. C	1909	Jefferson Medical College.
Wortham, John T	Raleigh, N. C	1909	Leonard Medical College.
Whitfield, Wm. A	Stokes, N. C	1908	Leonard Medical College.
Weatherly, John B	Kernersville, N. C	1909	University of Maryland.
Yokeley, S. H	Thomasville, N. C	1909	University College of Medicine.

LIMITED LICENSE.

Cooper, S. J	Poplar, N. C	Mitchell County and Ramseytown and Green Mountain Townships in Yancey County.
Lyday, A. E	Penrose, N. C	Transylvania and Henderson Counties.
Greer, F. M	Mable, N. C	Watauga and Ashe Counties.
Bingham, G. D	Amantha, N. C	Mitchell and Watauga Counties.
Blackburn	Todd, N. C	Bald Mt., Meat Camp and Stony Fork Townships in Watauga County.
Jones, U. S	Clifton, N. C	Ashe County.
Love, W. J	Watauga, N. C	Watauga County.
Jones, T. L	Lansing, N. C	Jobs Cabin and Elk Township in Wilkes County and Creston, Old Field, Pine Swamp and Jefferson Townships in Ashe County.
Bingham, R. K	Cranberry, N. C	Mitchell and Watauga Counties.
Cowell, W. H	Shawboro, N. C	Currituck County.
Harris, J. F	Jupiter, N. C	Flat Creek Township, Buncombe County.
DeHart, Jas	Almond, N. C	Swain Co.
Field, R. M	Goldston, N. C	Seven miles from his home in Goldston.
Tidwell, J. E	Andrews, N. C	Cherokee County.

BY RECIPROCITY

Name.	Address.	Year.	College.
Anderson, A. J	McAdenville, N. C	1904	University, Ga.
Costello, M. J	Asheville, N. C	1896	Medico-Chirurgical, Philadelphia.
Reeves, C. F	Asheville, N. C	1906	George Washington University.
Marr, M. W	Dorchester, Mass	1907	Tufts College, Boston.
Lowder, Mrs. L. C	Asheville, N. C	1898	Chirurgical College of Physics.
Ely, J. B	Tryon, N. C	1859	University of Louisville.
Stewart, E.E	Wake Forest, N. C	1906	P. & S., New York.
Nicholas, Jno. D	Etowa, Tenn	1894	Tennessee Medical College.
Northington, Jas. M	Boardman, N. C	1905	Medical College of Virginia.
Ferguson, R. F	Richmond, Va	1906	University College of Medicine.
Powell, R. A	Caroleen, N. C	1907	University College of Medicine.
Colby, D. W	Dillsboro, N. C	1892	Army Medical College.
Martin, M. S	Stuart, Va	1905	University College of Medicine.

PRESENT STATUS OF THE PELLAGRA PROBLEM.

By E. J. Wood, M.D., Wilmington.

A year ago, at the meeting of this Society in Winston-Salem, the question of pellagra was brought up in three papers, and the discussion of these papers elicited the fact that the disease was very generally distributed throughout the State, regardless of section. There seemed to be no section where the disease was more prevalent than in another. Since that symposium, through the cooperation of many of the physicians of the State, the disease has been diagnosed and notes of the cases furnished me, and in this way, my studies have been materially aided.

It is gratifying to us to have the hearty cooperation and encouragement of the United States Public Health and Marine Hospital Service in the study of this problem, which we have reason to think is of far more importance than was originally supposed. At this time, Past Assistant Surgeon, C. H. Lavinder, who was with us last year, is detailed in Columbia, S. C., studying the situation.

After a careful study of the literature extending over two centuries and a half, and after the study of something over fifty cases, we feel that we are not much further advanced in our knowledge of this obscure condition than was Lombroso in 1865. There are a dozen theories, and many of those who have only the most meager knowledge of two or three cases are advancing ideas for the solution of a problem that has vexed the medical profession since 1755.

It is gratifying to know that the disease is being generally recognized, and there is hardly a physician in the South to-day who is not on the lookout for pellagra. In typical cases the condition is so easily recognized that very often the diagnosis is made by the laity in sections where the disease is being studied.

The idea of the relationship of corn to pellagra is so firmly fixed that we can hardly get away from it long enough to look at the question of the etiology from an impartial point of view. There are many, however, who question the relationship of corn, and there are still others who consider corn merely as a culture medium on which the disease germ flourishes. Many ideas have been advanced, having for their chief point a specific micro-organism. Among the best known observers who have described an organism which they consider to be the specific cause, we have Cuboni, Majocchi, Peltauf and Heider. More recently Tizzoni, in Rome, and the writer have again called attention to the probability of there being a specific cause. It is altogether probable that the organism described by these various observers is one and the same, and a review of the work of each of them would convince any one that they were not altogether in the dark in their conclusions. It is very easy to fit in the idea of a specific germ and still not to contradict any of the conclusions which were arrived at by Lombroso many years ago.

The work of Tizzoni is of the greatest importance, and his monograph, which is just out of the press, is a masterpiece of modern bacteriological research. Tizzoni's observations extend over something more than ten years, and during that time he has produced the disease experimentally hundreds of times and has studied the life history and peculiarities of his organism in the most exhaustive manner. He found that by removing blood from the veins of a patient suffering with pellagra in the acute form, as well as by the removal of the cerebro-spinal fluid and cultures directly from the organ, he was able to grow on bouillon an organism which closely resembled the diplococcus lanceolatus of pneumonia, but which really was not a coccus, but a bacillus. This organism usually was found growing in chains, and this occurrence was so common that Tizzoni has given the name "the streptobacillus of pellagra." When this organism was injected subcutaneously into rabbits and guinea pigs, a diseased condition

was produced which was unquestionably pellagra. Tizzoni next attempted to produce the disease by feeding the animals with the specific organism, thereby attempting to imitate the probable way in which the disease naturally enters the body. Guinea pigs which were fed on the ordinary food with the exception of corn, were able to take enormous doses of the germ by the mouth without any ill results. On the other hand, when the germ was given with corn meal, although this meal was most carefully selected as to its purity and freedom from contamination, the animal readily succumbed to typical pellagra. Whether or not this organism requires a medium containing corn meal for its growth and development, is a question. There still remains some doubt whether any carbo-hydrate food would not furnish the same favorable medium, and Tizzoni has suggested that there may be an explanation, in that, in the cooking of corn meal, as it is usually done by the Italian peasantry, in the preparation of pollenta, the balling of the meal protects organisms contained in its center from the high degrees of heat that the surfaces of these balls are exposed to. Wheat flour, cooked in the same manner, forms a homogeneous suspension without lumps, thereby allowing the heat to reach every part. One of the most significant discoveries of Tizzoni was the fact that this organism may be heated to 90 degrees C. for one hour, and still not be destroyed. It is easy to see how a germ contained in the center of a pollenta ball could withstand the ordinary cooking process.

Occasionally, a bad sample of corn is found to contain the same organism which Tizzoni isolated from the blood, fæces, cerebro-spinal fluid, and organs of pellagrins. A small amount of corn is beaten up in a sterile mortar, and a culture tube of bouillon is inoculated with one-fourth its bulk of this crushed corn. The tube is then placed in the incubator, at 37 degrees C. for 24 hours. At the end of that time it is placed at a temperature of 90 degrees C., and kept there for one hour. This heating kills practically all of the ordinary

nonspore bearers, but the bacillus of pellagra remains unharmed, and from this tube, other tubes may be inoculated with the specific germ in pure culture. This is a most important point, because it offers an easy way for laboratory workers to rapidly examine any suspicious sample of corn in a relatively short time. The method is so simple that it may be done by any one who has had any laboratory training. The same experiments were performed with this organism isolated from corn as was done with the organism isolated from the pellagrin, and the results showed that the germ was identical.

Experiments have not yet been made to determine whether or not this organism is found in other food stuffs than in corn, nor has it been determined whether or not there is some other source of infection than by way of the mouth. There are still those who hold that pellagra occurs commonly in sections where corn is never eaten, and in my own experience I have seen patients who gave a history of eating not near as much corn as is eaten in my own family. It is hard to conceive that in a section where corn is almost invariably the chief article of diet, and where the source of the corn is the same for the rich and the poor, that the disease does not abound more generally.

Experimentally, there can be no doubt that the bacillus of pellagra forms an antitoxin, and that this antitoxin is curative. Tizzoni was able, by inoculating guinea pigs that had pellagra, with the blood from a healed pellagrin, to cure every case. As a control, he found that guinea pigs experimentally inoculated with the pellagra bacillus at the same time with the above mentioned, died in every instance, unless given a dose of the blood of a healed pellagrin * * * * * * * * had two patients in extremis, with acute pellagra. He had, also, under his care, a healed pellagrin. By using the method of Crile, transfusing the blood from the healed pellagrin to the other patient, he had the satisfaction of seeing his dying patient not only recover tempo-

rarily, but of securing a permanent cure, without recurrence. The second patient died before he finished the operation on the first. This experiment seems to prove conclusively that there can be no doubt that pellagra is a disease curable with an antitoxin. It was Bellamy, of Wilmington, and later, Powers, of Clemson College, S. C., who first suggested the probability that epizootic meningitis of horses, or "blind staggers," is nothing more nor less than pellagra. While this point has not been proven, it is very encouraging to think that the horse is susceptible to pellagra, because we must have an animal for the manufacture of an antitoxin that is large enough to be bled large quantities of blood at one time, in order to make the manufacture of any antitoxin an economic possibility. When we remember that this organism grows readily in the laboratory on all the ordinary culture media, that it is easily isolated by the heat method above described, and that an antitoxin would be effective, regardless of the relationship of any particular food, it seems a simple matter for the manufacturers to soon supply us with a curative serum.

While a typical case of pellagra is as easy to diagnose as measles, yet there are many cases varying from the normal that give us difficulty. When we first see the erythema of the exposed part definitely demarcated by the clothing from the sound skin and without any other symptom, we are often at a loss to know whether we have an outbreak of pellagra or a simple sunburn. It is never wise to make the diagnosis without the presence, or the history of the past occurrence, of a simple stomatitis, or a diarrhea, or both, but when we have the triad of symptoms; symmetrical erythema of the exposed parts, diarrhea, and stomatitis, we need not hesitate to make a definite diagnosis. We frequently see cases without stomatitis and without a history of having had it, but it is very infrequent not to find diarrhea or some other very definite digestive disturbance. These digestive disturbances

are usually numerous and varied. A burning sensation in the epigastrium and a pain just below the left scapula are common symptoms. "Pellagra-sine-pellagra" was mentioned at the meeting last year, but at that time we felt that our experience was insufficient to guarantee any reliability in attempting to make this difficult diagnosis. Since that time, we have extended our experience along this line, and we feel justified in concluding that not only does such a condition exist, but that it may be diagnosed. It is a well-known fact that the severity of the attack of pellagra is in no way indicated by the extent or severity of the skin lesion. We have seen many cases with a large amount of the skin surface affected, and yet the patient recover, while again, in other cases where the area of affected skin was small, the patients have succumbed. In most of our cases, "pellagra-sine-pellagra," we have found that a careful investigation of the previous medical history was very suggestive of one or more previous outbreaks of definite pellagra. Again, we found, on careful examination of the skin, in most of these cases, a faint line representing the limit of what must have been a skin lesion of mild degree. We are rather disposed to conclude that "pellagra-sine-pellagra" is a misnomer, and that in all these cases, at one time or another, there have been definite skin lesions of pellagra, but, in all these cases, the skin lesion has been very insignificant. Our cases of "pellagra-sine-pellagra" were characterized by stomatitis, diarrhea, and well-marked nervous and mental symptoms. In all cases the patients were melancholy. In two cases the patients were markedly emaciated, and the reflexes were very much exaggerated. Blood cultures taken from these patients were negative, but this was expected, as we have learned by experience that the organism can only be isolated from the blood of patients suffering the acute form of the disease. In the discussion of a paper presented by the writer to the College of Physicians of Philadelphia, in last Novem-

ber, Dr. H. A. Cotton, Superintendent of the State Hospital for the Insane, at Trenton, N. J., mentioned a class of cases recently described by Adolph Meyer under the term "central neuritis," in which the mental symptoms were quite similar to those of "pellagra-sine-pellagra." Associated with the stupor or anxious delirium, he mentioned rigidity, peculiar muscular spasms or jactitations, and obstinate diarrhea. All these cases terminated fatally. The etiology of central neuritis is obscure, but the process is probably due to an intoxication, and as Dr. Cotton said, the histopathology has been definitely described and can easily be diagnosticated by a competent neuro-pathologist. While the two diseases can not be counted altogether similar, still, they probably arose from the same pathological process. It was my good fortune to secure the brain and spinal cord from one of my cases of "pellagra-sine-pellagra," which I submitted to Dr. Cotton. He writes me as follows:

"My suspicions regarding the similarity of this process with that of central neuritis is well borne out in this case. The large motor cells and a great many cells in other regions show 'axonal reaction' to a very marked degree.

"The condition has been somewhat described by Maranesco, and some Italians as 'chronmatolysis,' but none of them have recognized that it is 'axonal reaction.' In other words, it is a parenchymatous degeneration of the central nervous system."

The case above referred to was unquestionably one of pellagra, and the pathologic finding as reported by Dr. Cotton, is important, because, as Dr. Cotton says, it is altogether probable that this condition, which has been described as central neuritis is probably prevalent in the Insane Institutions of New York and of Massachusetts. It is certainly worthy of further investigation to determine further the question of the possible identity of central neuritis with this, atypical form of pellagra. It is also probable that many of

the cases diagnosed as dementia paralytica, in which have occurred peculiar skin lesions, are really pellagra.

In the Fourth Annual Report of the State Board of Health of the Commonwealth of Georgia, 1908, Dr. H. F. Harris reported the occurrence of sprue. From Dr. Harris's description, it would be extremely difficult to diagnose this condition from "pellagra-sine-pellagra," owing to the fact that the characteristic symptoms of sprue are stomatitis, diarrhea, emaciation, and mental disturbances very similar to pellagra. In my cases of "pellagra-sine-pellagra," I have not noticed the peculiar ulceration which forms from time to time on the buccal mucous membrane, on the roof of the mouth, and between the last molar teeth on both lower and upper jaws. The stomatitis of pellagra is usually a simple redness, with salivation, but without definite ulcerated patches. I am disposed to question the correctness of the diagnosis of these cases, or to question the correctness of the diagnosis of our cases of "pellagra-sine-pellagra," because, in both conditions, the symptoms and course were practically identical. It is far more likely that the diagnosis of pellagra is correct, and that the diagnosis of sprue was made through an imperfect knowledge of pellagra. I think that if Dr. Harris should see some of our cases of pellagra, and also some of our cases of "pellagra-sine-pellagra," that he would be disposed to accept our view. It is to be hoped that, with the discovery of a specific organism of pellagra, we may be able to resort to a definite agglutination test similar to the Widal test in typhoid fever. We have some grounds for thinking that this test will be perfected shortly.

The treatment of pellagra has been one of the most disappointing things in medicine. There is no specific, and first one remedy after another has been extolled, only to be thrust aside after the demonstration of its uselessness. In our experience, from the beginning, we are able to predict with a fair degree of certainty, those cases that will recover

and those that will succumb after a few weeks, or possibly a few months, of untold physical and mental suffering. In the "Berlinger Klinische Wochenschrift" for February 8, 1909, there is a notable article by Babes, Vasiliu and Gheorghus, in which they advocate the treatment of these patients by arsenic, given in three ways, simultaneously. They inject 7 1-2 grains atoxyl hypodermically, and in addition to this, they have rubbed into the patient's skin 75 grains of an ointment composed of a 1 to 50 arsenious acid preparation. Finally, they have the patient take internally, one-fiftieth of a grain of arsenious acid in pill form, three times a day. These observers have treated sixty-five cases of pellagra in this manner with a loss of only six cases. In the article referred to above, they report a series of fourteen cases, all of which responded readily to from one to three treatments as detailed above, and have gone for a number of months with no sign of any recurrence. In all of these cases there was a marked gain in weight. At the present time I am giving this treatment a trial, but am not yet prepared to report my experience with it. Last summer I treated a case of acute pellagra in a child eleven years of age, by the hypodermic injection of four grains of atoxyl, repeated every fourth day. The drug in no way altered the course of the disease. I doubt very much whether this arsenic treatment which was so successful, in the milder European form of the disease, would affect our very severe and rapidly fatal cases. It is interesting, however, to note in this connection, that the disease as we see it to-day, is very much more attenuated than our first cases three years ago. Three years ago, our cases always died, while at the present time the disease is assuming the more characteristic chronic form, which is very much milder. It is to be hoped that in these cases the arsenic treatment may give us some encouragement.

After all, we must look to serum therapy for relief. As mentioned above, we have every reason to expect the early preparation of a curative serum.

In concluding this paper, I would like again to entreat the medical profession in North Carolina for their support and cooperation in the study of a disease that bids fair to be second only to tuberculosis in its importance. We are already deeply indebted to many members of this Society for their assistance during the past year, and I take this opportunity to assure them that any information or report of cases, or ideas as to the etiological factors in this disease, will be highly appreciated. We are ready to give our time and our means, as far as we are able, to the study of pellagra, and we feel that we will not plead in vain for the assistance of our brother practitioners, who should be just as deeply concerned in the outcome of our studies as we are ourselves.

ALCOHOL.

(a) The Pharmacological Action of Alcohol.
(b) Logical Indications for the Use of Alcohol as a Therapeutic Agent.
(c) Changes Produced Experimentally in the Blood Vessels of Rabbits Subjected to the Action of Alcohol.

By Wm. deB. MacNider, M.D.,
Professor of Pharmacology in the University of North Carolina.
(From the Laboratory of Pharmacology.)

The subject under discussion may be approached and studied with benefit from many points of view. At the present time a consideration of alcohol from a sociological view point would be of interest, but for many reasons this side of the subject will be severely left alone.

Like many other questions of medical interest, the older they are, the more they are subjected to discussion and criticism, the more interesting they become, especially in these latter years when they can be approached, studied, and in some cases solved by scientific methods of investigation. Such a statement is certainly true concerning this old, yet often discarded drug—alcohol.

Occurring as it does free in nature, or at least, the elements which enter into its formation are free, namely ferments and starches, it was natural enough for the ancients to use the drug as a remedial agent and as a beverage. Judging from the older writings the influence of alcohol upon the nervous system and the circulatory system, both in a dilute and a concentrated form, was well understood. The modern conception of the action of alcohol upon the body, both before and after absorption, and in dilute and concentrated solutions, differs in some essentials and in many details from the views regarding its action which were held some years ago. This change has been largely due to the study of the drug from an experimental laboratory side. Approached in such

a way, many of the confusing factors can be eliminated which exist in a very pronounced and exaggerated form at the bedside, and which may mask and overshadow the action of a drug, and render deductions which are seemingly logical fallacious. We frequently hear the remark that conclusions arrived at when the individual is eliminated from the equation must be of slight practical value. In this statement there is a pronounced element of truth which can with ease be discerned when we think of the influence the mind exerts over the various functions of the body in health and in disease. This influence can not be considered as it should be, and can not be appreciated in most laboratory work. The mental status of an individual usually plays but a feeble part in determining the action of a drug, and on this account the pharmacological action of the vast majority of drugs can be scientifically determined, and logical deductions for their use arrived at by laboratory experiments upon anesthetized animals.

THE PHARMACOLOGICAL ACTION OF ALCOHOL.

The action of alcohol when used externally depends upon the concentration of the solution employed. The stronger solutions, 80-95 per cent, are not so strongly germicidal as the weaker, 30-40 per cent, solutions. When the stronger solutions come in contact with the bacterial cell, they produce a superficial coagulation of the albuminous material of the cell body which prevents the penetration of the drug and lessens its germicidal power. In addition to this direct germicidal action, alcohol, indirectly acts as a germicide by dissolving fatty material in and around the hair follicles, and allowing a deeper and more perfect action of other germicides, such as the bichloride of mercury.

The influence of alcohol on digestion, and the role it plays as a food are two questions which have been severely battered by laboratory investigations and clinical observations.

When the drug is used in a concentrated form, it un-

doubtedly increases the amount of blood to the gastro-intestinal tube, this increased vascularity persists, and as a result of its persistence leads to an overproduction of mucous and a connective tissue hyperplasia in the mucous and submucous coats of the stomach and intestines. The mucus which results from an increased blood supply to the mucous glands is readily decomposed by the intestinal bacteria with the formation of acids of fermentation. Just what part these acids play in chronic alcoholism, auto-intoxication, and to what extent they inaugurate the diffuse connective tissue overgrowth in the body, which is most marked in the liver, blood vessels, and kidneys is an intensely live question with which we hope to do something experimentally.

When alcohol is used in small amounts and in a well-diluted form before or during meals, it acts to a less degree as an irritant, but simply through this action increases the amount of blood to the stomach and intestinal glands. As a result of the glands receiving more blood, their functional activity is increased, and there is an increased output of digestive juices.

When alcohol is given undiluted with the idea in view of aiding digestion, it undoubtedly does harm, as the stronger solutions check the action of unorganized enzymes as pepsin and trypsin, as well as such organized ferments as the yeasts.

Alcohol is readily absorbed from the intestines, and is usually, quickly oxidized into its final end products, CO_2 and H_2O.

The influence which this drug has after its absorption is the part of the alcohol question which has been most severely discussed, both by the laboratory student and clinician. As a result of the rapid combustion of the drug after its absorption, it furnishes heat and energy to the body, lessens the combustion of fats and carbohydrates, and in this way indirectly acts as a food. This point seems fairly well established, and is generally accepted. The point concerning the

action of alcohol, which is still the subject of a lively discussion, is whether or not it can be considered a circulatory stimulant. If alcohol be given to a healthy individual in a fairly strong solution it is the common observation that the heart quickens its action, there is an increased output of blood into the arterial system, and the pulse tension is raised. A similar effect upon the circulatory system can be produced by other gastric irritants, such as ammonia, ether, and capsicum. This stimulating action of the drug is very likely a gastric reflex. To determine this point, we have on several occasions anesthetized a rabbit with a chloral-hydrate solution, and connected the animal's carotid artery to a mercury manometer so as to accurately record the arterial pressure. At intervals of 15 minutes a small soft rubber catheter was introduced into the animal's stomach, and 30 c. c. of a 30 per cent solution of ethyl alcohol administered. The heart's rate and the animal's blood pressure were recorded every five minutes. There was no appreciable rise in blood pressure, and but a very slight acceleration of the heart. These experiments certainly support the belief that the acceleration of the heart after the use of alcohol is a gastric reflex from irritation, and that when the reflexes have been abolished as a result of the anesthesia, the quickening of the heart and the subsequent rise in pressure from alcohol does not occur.

I am firmly of the belief that there are certain infectious diseases in which alcohol is of the greatest value as a circulatory support. I do not say stimulant, for with the ordinary interpretation of this term it would convey a false meaning. In pneumonia, typhoid fever, and more rarely in tuberculosis, we frequently see patients with a fast heart, a soft, small pulse, rapid respirations, and muttering or maniacal deliriums. In short these are outward manifestations of an overstimulated central nervous system. The stimulus is the toxin of the infection which continues to act upon the cells of the

central nervous system, and at first gives rise to this picture of stimulation, and unless it is stopped leads to over-stimulation, fatigue, and a state of inactivity of the central nervous system, which is manifested by a state of coma which frequently precedes death.

In such cases following the use of alcohol, especially in pneumonia, it is a common observation to note that the delirium lessens, sleep is induced, the heart's action becomes less excited, and the pulse is of a larger volume and of better tension. This result is brought about not by any stimulating effect of the drug, but by its action as a sedative to the central nervous system. The action of alcohol upon the central nervous system consists in a depression from before backward, the medullary centers being the last affected. As a result of this action of the drug the cerebral and other centers, which are in danger of becoming fatigued from over-stimulation, are so depressed that they no longer respond to the stimulus of the toxin, the state of fatigue is prevented, and the integrity of the cell is maintained. It has been clearly demonstrated experimentally by Dolly, that as a result of over-stimulation structural changes of a degenerative nature develop in the cells of the central nervous system, and furthermore that these changes frequently lead to an actual rupture and death of the cells.

EXPERIMENTAL ARTERIO-SCLEROSIS BY THE USE OF ALCOHOL.

As a result of the use of the higher animals for teaching and experimental purposes, there has developed in this country an enormous amount of literature along the line of experimental pathology. Such work is not only essential to the proper teaching of several of the rudimentary branches in the medical curriculum, but it is the only way by which many problems in pathology and pathological physiology can be approached and solved.

The blood vessels of the lower animals were early used as a field for such experimental work. Among the investigators who have attempted to produce atheromatous changes in the vessels are Josue, Fischer, Kurt, Klotz, and Miller. Various drugs and other agents have been employed, but the most satisfactory results have been obtained by Miller who used solutions of adrenalin and physostigmine.

It is a well-known fact that the majority of individuals who use alcohol continuously, develop some type of arteriosclerosis. The severity of the process varies from a slight induration of the aortic valves, and a few atheromatous patches in the aortic arch to a diffuse arterial sclerosis which exists in the peripheral vessels as the classical "pipe stem" arteries.

It was the object of our investigations, to determine first, if such changes could be produced experimentally by alcohol in the vessels of the lower animals. Secondly, to determine, if possible, if these changes were due, per se, to the alcohol, or if other secondary factors entered into their production; and thirdly, to attempt to find some remedial agent which would have either a direct or indirect influence upon the morbid process.

The rabbit was the animal chosen for this work, as they are comparatively cheap and easy to handle. The alcohol was given by the stomach through a soft rubber catheter. For the first few days 25 c. c. of a 10 per cent solution was given, and after this the amount was increased to 50 c. c., and the strength of the solution to 20 per cent. A few of the animals died from accidental causes. In those that lived the alcohol was continued for nearly eight weeks. At the end of this time the rabbits were killed by chloroform, complete post-mortems were held, and the heart, aorta, and iliac vessels removed for microscopic study.

There were fourteen animals in this first series which were subjected to the action of alcohol as described above.

Of the fourteen animals the vessels of ten showed distinct evidence of some type of arterial degeneration. These changes varied greatly as to their severity and location. In four of the animals the vascular changes were evidently early, and consisted chiefly in a diffuse connective tissue overgrowth in the cellular stage, which affected principally the middle coat of the vessels, but which was beginning to be more pronounced around the blood vessels of the middle coat, *e. g.* the vasa vasorum. This localization of young connective tissue around these nutrient vessels of the middle coat is important. For when the connective tissue reaches its fibrillary stage and contracts, it will inevitably compress the lumen of the vessel which it surrounds, and prevent an adequate amount of nutrition in the form of blood from reaching the media. This will aid, if not directly cause, degenerative changes of the middle coat.

In the vessels of three of the animals the most marked changes were to be found in the inner coat. This consisted in a subendothelial hyperplasia, which existed in patches, and which was most marked in the aortic arch. A few of the patches were losing their nuclei, failing to stain and beginning to develop into atheromatous ulcers.

The aorta of the three remaining animals showed decided evidence of late degenerative changes. These changes existed as well-defined punched-out or scooped-out atheromatous ulcers. Their location with one exception was in the arch of the aorta. The inner and middle coats of the vessel were always involved, the floor of the ulcer usually being formed by the outer part of the middle coat. In the aorta of one of the animals the ulceration was very extensive. The ulcers were large, had a scooped-out appearance, and were found in the abdominal as well as the upper aorta. The floor of one of these ulcers was formed by the outer coat of the vessel, which was bulged out on the surface as a sacculated aneurism. A detailed account of this work has been published

by the Archives of Internal Medicine. We feel certain that degenerative changes can be produced in the vessels of the rabbit by the use of alcohol. On account of the small number of animals used the report is preliminary in its character.

The question naturally arises, might not these changes, which were found in the vessels, have developed spontaneously, and not be ascribable to the alcohol action?

To eliminate this possible source of error, the vessels of eighteen presumably normal rabbits were removed and studied microscopically. In fifteen of the vessels there was no evidence of general or localized sclerosis. In the remaining three vessels, there was in one a small round cell infiltration of the media. In the other two there were a few patches of thickening of the internal coat, which were in the early stages of the formation of atheromatous ulcers.

The second point of this work was to determine, if possible, the cause of the vascular degeneration. The following observation, we hope, will have some weight and throw some light on this side of the question. Those animals, which did not develop arterial changes, and those in which these changes were only slight, gained in weight under the use of alcohol, had good appetites, and showed no sign during life or at the post-mortem of gastro-intestinal irritation; while those animals which developed the most pronounced vascular changes, and those in which these changes were fairly severe, lost in weight under the use of alcohol, had a poor appetite, and a diarrhea during most of the time the alcohol was being used. At the post-mortem such animals showed an acute diffuse enteritis of moderate severity.

All of the animals were receiving the same amount and the same strength of alcohol. Some developed gastro-enteritis, and in these arterial changes were most pronounced. Others did not develop a gastro-enteritis, and in these animals there was either no arterio-sclerosis or the arterial changes were slight. Evidently some factor other than the alcohol per se

has an influence in the production of degenerations of the blood vessels. Just what this is we are at present in no position to say. The apparent fact certainly affords an interesting field for speculation and investigation. It is not unlikely that in some individuals as well as in some animals alcohol causes an acute catarrhal state of the stomach and intestines. As a result of this increased amount of blood to the mucous glands of the stomach and intestine, they become hyper-active and produce an excessive amount of mucus which is discharged into the intestine, and here decomposes with the liberation of organic acids, and other bodies which are absorbed and lead primarily to a chronic auto-intoxication, and secondarily to vascular degeneration.

CONCLUSIONS.

1. When used externally in weak solutions, alcohol is directly and indirectly a germicide.

2. When used in weak solutions, in the stomach and intestine, it acts mildly as an irritant, increases the amount of blood to these structures, and increases the functional activity of the gastric and intestinal glands.

3. In strong solutions, by acting as a gastric irritant, it reflexly increases the rate, and perhaps the force of the heart beat.

4. After absorption it has no direct effect upon the circulatory system, but through its sedative action on the central nervous system, it prevents the heart from being over-stimulated, and in this way is of distinct value in some of the acute infectious diseases.

5. Arterial degeneration may be produced in the lower animals by alcohol.

6. The degenerative vascular changes are likely not entirely due, primarily to the alcohol acting as such, but to the absorption of products from the intestine which the alcohol has indirectly caused to be formed.

PROPHYLAXIS IN TYPHOID FEVER.

By W. P. Horton, North Wilkesboro.

The triumph which has been reached in the name of the Medical Profession in the discovery of the real cause and spread of or preventing the propagation of such germs as cause this disease has opened up many possibilities in the improvement of health, strength and life saving of the American people. But there is yet much to be done, the effects of bad water, impure food, ill-ventilated houses and failing to isolate contagious and infectious diseases is becoming more and more apparent every day.

The study which great sanitary authorities have given the matter has imposed much more distinctly the burden upon the Municipal, State and Federal Governments in looking after the health of the American people.

But my purpose in selecting this is to discuss from a local standpoint, or, more definitely, some years' observation in a mountain town, where complications of malaria can safely be excluded by location and altitude.

Therefore, when a patient presents symptoms of typhoid fever we can readily determine what we have to contend with.

A little over ten years ago more than 20 per cent of the population of North Wilkesboro were stricken with typhoid fever—in fact, this disease spread with such rapidity and to such an alarming extent that not only the health officers, but the citizens at large, began to search for the cause. Investigation showed that four years previous some negroes who lived in the immediate vicinity had quite a number of cases of the most malignant type, many of them having hemorrhage, and these cases were badly managed; the excreta was recklessly thrown out on the ground to be taken up by the water supply and underground drainage.

It was clearly shown by this history that these cases were

caused by the germs finding their way through the surface drainage to the wells, all of which showed more or less of this infection. Therefore, the best and only means of preventing the spread of typhoid fever is to destroy the germs and prevent their accumulation, and the only remedy that is sure is the application of heat. However, the first attack should be made in the treatment of the patient, and as I firmly believe in antiseptic treatment, and there is no doubt in my mind but that Dr. Flint had the destruction of these germs in view when he recommended as a treatment of typhoid fever carbolic acid and tincture of iodine, three parts of the first and two of the latter. This was later improved on by Shumaker, who recommended beta napthol in much larger doses, which not only serves as an antiseptic to the ulcerated bowels, but seems to destroy typhoid bacilli, it being much stronger, and should have the same effect on the intestinal ulcer as carbolic acid for external use, and there is no better time to attack these little enemies than when we have them bottled as it were. The second attack should be made immediately after the evacuation by free use of chloride of lime and other strong disinfectants. Immediately after the application of the disinfectant the stool should be removed to some back lot, where the last and fatal attack should be made by providing a tub that will hold about three bushels; place it with the bottom about ten inches in the ground, partly filled with excelsior or straw and a carefully fitted plank over the top. This is the point where the most is accomplished, first by preventing the underground water supply from becoming infected, second by preventing the most common carrier of all germs, or better known as the house-fly.

It is hardly necessary to cite authorities on the capacity of the house-fly, which carry bacteria from one place to another. This capacity has been amply demonstrated and confirmed. The house-fly is known to be strongly attracted by noisome

odors. It hovers about and feeds and propagates on human excreta. It eats pus, sputum and other pathological products. In fact, its habits are well adapted to favor the soiling of the exterior of its body, and to fill its interior with various species of disease germs. Pathogenic bacteria have been demonstrated on its proboscis, its feet and in its digestive tract and its excreta, the well-known fly specks.

The kinds of infections it is best adapted to transport from place to place are typhoid, tuberculosis and Asiatic cholera. By seeding our foods, notably milk, with these germs which it obtains from ejections, it will cause localized family epidemics.

The bacilli of tuberculosis and typhoid may be disseminated by it, because the fly will feed on sputum as well, and the bacilli may pass alive through the digestive tract and appear in the fly-specks, and has been found living in the excreta of flies fed with sputum and excreta fifteen days after they had passed. The severe epidemics of typhoid in our camps during the Spanish-American war were attributed by the investigating commission to flies. There can be no doubt that the house-fly is a potential danger in proportion to the number of individuals living in our environments.

I believe that this position will hardly be questioned by any one to-day, and it is not necessary to spend any more time on this aspect of the subject. The more important problem confronting us is how to restrict and suppress this noxious insect. In order that the house-fly may be controlled we must know where it breeds. This little pest is bred and born in compost heaps and nourished from the stables and closets until it becomes wise enough to go to all accessible tables three times a day for dessert. He crawls over the different articles of food with his infected feet, planting his long proboscis in the most delicate dish, only to eject its filthy contents and refill with something better.

In a comparative statement science has shown more deadly

germs contained in the trunk of a single house-fly than the trunk of an elephant and the former should be regarded as the more dangerous of the two.

The house-fly is too timid to go in dark places and can be eliminated from our closets by the small cost of twenty-five cents and a little extra care. The methods I propose will eliminate the fly from all infected substances and make the dangers very much less than the old and almost universal plan of burying the stool in the ground, which should be forever condemned by the medical profession. When the above suggestions have been carried out and the patient reaches the convalescent stage the application of a match to a half gallon of coal oil used in and around the tub will complete the work, and you can rest assured that the germs from the typhoid patient have not been allowed to infect the water supply of the entire community, nor has the multitude of flies of the entire town been allowed to scatter the germs from your patient. This can be done at a cost of less than fifty cents, and until a united effort by both State and County with the co-operation of the American Health League for the suppression of these germs can we expect the slightest improvement along this line.

THE TREATMENT OF TUBERCULOSIS IN SWITZERLAND.

By Mary E. Lapham, M.D., Highlands.

In the town of Davos, Switzerland, there are 5,000 beds primarily intended for tubercular patients and many more accidentally so employed; 5,000 patients suffering from the same disease, and remaining under observation for months, afford unparalleled opportunities for studying this disease. The physicians conducting these studies are men of world-wide reputation—Turban, Lucius Spengler, Carl Spengler, Ludwig, von Muralt, Frey, Phillippi, and others—are household words in the literature of tuberculosis.

These men have at their command perfectly appointed sanatoriums, with all that science can suggest and skill can produce to aid them. The food supplied is extraordinary in its choice and cooking; the climate is wonderfully effective; the altitude is suitable—4,500 feet; the surroundings most beautiful, and there are many varieties of amusements that help greatly in keeping the patients contented and happy; there are miles of walks kept constantly clean, benches upon which to rest, and the diversions of shopping and watching the twenty odd thousand visitors that annually visit Davos, for its sports are in no way antagonistic, because Davos is only a village strung on one street and never losing the country. There is no smoke in Davos—no great clouds of blackness drifting down on you such as one feels in some of our towns frequented by tubercular patients. All the filth of coal smoke is avoided by converting the coal into coke six miles away, and then sending the gas and coke on to be used as fuel. The town and the surrounding sanatoriums are flooded with electricity—so cheap that the whole town is fairly blazing at night. From 7:30 p. m. until 9:30 the patients lie out on verandas and balconies. Each patient

has his own light, and thus the balconies and long verandas with their hundreds of lights give the town a very festive appearance, like an illumination turned inside out.

With their patients well housed, well looked after and magnificently fed, with a wealth of pleasant walks of all grades, with the patients amused and diverted, and every possible assistance that science can suggest or money can buy, the chief physicians of these sanatoriums go their way unencumbered, free to devote all their ability to the one great aim, a larger percentage of cures. Five thousand patients, in the midst of beautiful surroundings, in a marvelous climate, at an altitude of 4,500 feet, with every comfort and with all that skill can devise, 5,000 patients and only one disease. Is it any wonder that the treatment of this disease has reached the rank of a specialty, that it has been taken from the realm of the general practitioner and placed in that of the specialist so that the diagnosis and treatment of a case of tuberculosis should just as profitably be referred to a specialist as a case of impaired hearing or vision, or as a nose and throat case?

In looking over the histories of the patients in one of the best of the Davos sanatoriums I was greatly surprised by the difference in the estimate of the patient's condition as furnished by the outside physician and that made at the sanatorium. The general practitioner furnished a general idea of the extent of the lesion; the specialist gave a detailed report of every portion of the lung. No general statement such as "dullness from the clavicle to the third rib" would be made, but every intercostal space was described, and then any one could see for himself what the condition must be. The reports brought by the patients were frequently made by men of international reputation, and yet there was no comparison between the generalization on the one hand and the specific accuracy on the other.

When the sputum is negative tuberculin tests are made as a matter of routine in many of the Swiss sanatoriums. A 1

per cent solution of old tuberculin is dropped into the left eye if there are no contra-indications, and two vaccinations are made on the anterior surface of the forearm by scarifying two crosses, one more distal than the other and by rubbing into the proximal cross a 10 per cent and into the other a 50 per cent solution of old tuberculin. A record is kept of the results of these tests after twenty-four, forty-eight and seventy-two hours.

The treatment is at first symptomatic; if this does not suffice tuberculin is used, or artificial pneumothorax or pneumolysis is tried.

In symptomatic treatment nothing is left to the patient's judgment. Every hour—almost every moment—of the patient's existence is carefully arranged and supervised. The patient is practically a piece of mechanism, started in the morning, kept going through the day, and stopped at night, with scarcely any more responsibility or volition than a machine. The proper dosage of rest, food and exercise is applied with infinite care and precision, and a certain rigidity that permits neither excess nor neglect, and that does not depend upon the patient's judgment for its observance. Since there are many hotels and pensions in Davos where tubercular patients are treated, a good opportunity is afforded for comparing the open and the closed systems, with the comparison overwhelmingly in favor of the closed system. With the best food, the same climate, the same regime and the advice of the same physician, the patient does better when under careful, continual supervision. As Turban says, "It is very little to tell a patient what to do; the main thing is to see that he does it!"

If the patient's general health is good, and he is in the first stage of the disease, according to Turban, his day will be spent about as follows: 7 a. m., rises; 7:30, breakfast—rolls, coffee, preserves or marmalade; 8, a brisk, douching all over, with the force and temperature of the water suited

to the patient's condition; 8:15-9:45, walking up a somewhat steep grade, with frequent intervals of rest; 9:45-10:30, lying out in the open air in verandas upon a cot well supplied with mattress, pillows and warm cushions (the back can be placed at any angle); there are tables and racks for books and writing; 10:30-11, second breakfast—sandwiches, milk, &c.; 11-12, walking on level ground, resting often; 12-1, lying out; 1-2, dinner—soup, fish and potatoes, a meat course, with vegetables, fowl and salad, stewed fruits, pudding, fresh fruit; 2-2:30, an interval of freedom; 2:30-4, lying out, no talking, absolute silence; 4-4:30, coffee, or tea or chocolate, with rolls or cake; 4:30-6, walking on the level, resting often; 6-7, lying out; 7-7:45, supper—soup, two meat courses, with vegetables and salad, compote, cheese, dessert; 8-9:30, lying out, with a glass of hot milk drunk at 9; 10, bed.

This is known familiarly as Turban's day. Ten and a quarter hours are spent in the open air, three and a half hours in walking, one in sitting, five and three-quarters lying out. The patients take their own temperatures and record them three times a day.

The pulse is counted night and morning by a nurse, and the lungs and sputum examined once a month. If the patient does not do well the exercise may have to be cut down, but an effort is always made to increase by exercise the amount of the patient's resistance, so that any gain may be held, and the patient will not have to come back again.

Tuberculin is used a great deal in Davos, not as a routine treatment, but in carefully selected cases. The variety of tuberculin and the method of its use differs in the different sanatoriums, and in different cases, so that too much time would be needed to go adequately into this subject. All that I can say is that its use is steadily increasing.

When the patient does not do well, but goes steadily from bad to worse, something must be done if he is to get well.

When symptomatic treatment and tuberculin fail, the only hope seems to be to put the lung at rest, to throw it out of use, to compress it so thoroughly that all the blood will be drawn out of it, and the walls and excavations be brought into closest apposition, so that the cavities will be obliterated by scar tissue. If the pleural surfaces are sufficiently free from adhesions to permit the forcing in of nitrogen, artificial pneumothorax is indicated; if the pleural sac is so obliterated that it no longer permits of distention, then the only way to render the lung immobile is to resect a sufficient number of ribs to make expansion impossible. Both pneumothorax and pneumolysis have been used with great success in Davos. Artificial pneumothorax is so reasonable in theory and so easy in practice that it is hard to understand either the indifference or the antagonism of the profession. I had read the original articles by Murphy and Forlanini without being greatly stimulated thereby to use the method, but when I saw men walking about, feeling well, looking well, and free from cough, fever or sweats, who a few months before had seemed inevitably doomed, the effect was quite different from that produced by reading.

The typical class of cases most suggestive of pneumothorax is that of extensive and almost hopeless involvement of one lung, with fever, sweats, profuse expectoration, progressive loss of weight and strength. These are usually cases of marked cavity formation, with secondary infection. When the nitrogen is forced into the pleural sac, the lung compressed and thrown out of service, the cavities obliterated and the absorption of toxins prevented, the clinical picture changes marvelously. The fever and night sweats disappear, expectoration ceases, strength and appetite and weight return. It seems such a simple thing to do. To see a man lie down on a sofa, throw his arm above his head, receive a simple painless puncture, followed by the introduction of nitrogen, to see him rise and walk comfortably away, and

to know that this procedure stood between him and death, is to wonder why it is not more often done. The results of this treatment have been graphically portrayed by an elaborate series of X-ray pictures. The lung is carefully skiagraphed before beginning the treatment; then periodically skiagraphs are taken to show the gradual changes in the lung. It is too much to ask any one to believe that has not seen these series of skiagraphs that the tissues of an infiltrated lung can be restored; it is a priori too improbable, and yet the gradual clearing up and restoration of the lung is so plainly shown in these skiagraphs that he who runs may read. The objections to using this method are (a) danger of infecting the pleural cavity; (b) the danger of piercing the pulmonary pleura and wounding the lung; (c) air embolism; (d) nervous phenomena, such as syncope, eclampsia, etc.

These dangers are partly real, partly exaggerated. Infection is always a menace, and when the pleuræ are adherent there is some danger of piercing the lung. But these conditions are more theoretical than actual; for instance, Forlanini, in endeavoring to get into the pleural sac, or rather to find a place where the two pleuræ were not adherent, made twenty-eight punctures without the slightest evil effects. Air embolism is prevented by using a needle connected with a syringe in such a way that by aspirating any fluid within the needle can be withdrawn, and if it is blood, the needle can be withdrawn. If the needle does not enter a vessel there is, of course, no danger of embolism.

The advantages of this method are so apparent that the wonder is that it is not adopted with enthusiastic recklessness, that it is not proposed as a sure means for promptly and decisively obliterating tubercular processes with the least danger of a relapse. Possibly it may some day be adopted as a routine measure in all cases of unilateral involvement. This is such an important subject that I append a list of the literature.

When there are such extensive adhesions of the pleural surfaces that they can not be separated, or such strong fibrous bands that they can not be broken up by the force of the positive nitrogen pressure, then collapse of the lung and negative pressure is all that can be obtained. Starting with the idea that the lung must be made as immobile as possible, the ribs from the second to the tenth have been removed from their cartilages to the spine, together with the intercostal muscles, nerves, and vessels, at the same time carefully preserving the costal pleura. This extensive wound heals per primam in eight to ten days; fever, cough and expectoration promptly diminish; usually within ten weeks the amount of sputum decreases from 200 cm. to 10 or 5 cm. a day, with a corresponding decrease of fever and sweating, while the strength and weight of the patient begins to improve. There have been a number of these operations performed in Davos with the most gratifying success. They have without exception been cases of several years treatment, with progressive increase in severity in spite of every known advantage of remedy or method or climate—with long-continued fever and its attendant consequences. These were cases of chronic fibroid cavity formation, which, in consequence of collapse and approximation of their walls, together with the impossibility of expansion, began to recover with astonishing rapidity when drained through their bronchial tubes.

Remarkable as these results are, they add further emphasis to the correctness of the theory that immobility for the diseased lung tissues is of primary importance, and so strengthens the demand for artificial pneumothorax before the pleural surfaces become adherent, while the operation is as simple and easy as an exploratory puncture, and safety is secured for the patient without months of uncertainty as to the immediate, or years as to the eventual result.

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THE TRAINING OF THE GYNECOLOGIST.

By Hubert A. Royster, A.B., M.D., Raleigh.
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In recent years gynecologists have been criticised from two opposite points of view. They have been accused, on the one hand, of doing too little, and, on the other, of doing too much. Under the first count it has been asserted that the gynecological field was narrow, and that the attitude of one who worked in that field was necessarily contracted. The second criticism is aimed at those who have attempted to widen the field and who thereby have brought on themselves the charge of encroaching upon the confines of others.

Whether these criticisms are just or not will now give us no great concern. What interests us particularly is that these two opposing views of an important specialty do exist, and there must be grounds on which such opinions are based. No good can come of arguing the facts in the case. But, admitting the contentions, there may be some profit from an inquiry into the reasons for these views and from suggestions in the matter of their avoidance.

It is doubtless true that at different times and in divers places, gynecologists have been guilty of the charges as made. In many instances they may have failed to take the larger view of the woman, while looking at the womb; or, possibly, removed organs free from permanent lesions and recklessly gone off after distant and unrelated affections. Whenever such things occur and a whole specialty is arraigned for these performances of its followers, explanations are needful. No matter how restricted or how widespread such practices may be, they are due to false conceptions and improper training. By the latter is not meant too little training; too much of the wrong kind is distinctly more harmful.

From its very beginnings gynecology has been intimately associated with obstetrics. In fact, the necessity for devoting attention to the diseases of women came as a result of conditions produced by childbirth. Gynecology really had its origin in obstetrics—particularly in crude and meddlesome obstetrics. It was a perfectly natural process when those who essayed to go into gynecology approached it from the domain of midwifery. All the older gynecologists were produced in this way, and, be it said to their credit, they left a deep impression on the whole science and art of medicine. As their specialty grew, however, it became more and more evident that marked mechanical, manipulative and operative skill would be required, and only a chosen few developed real surgical instinct. Those who fell by the wayside failed to perfect themselves in technique, failed to see that gynecology must become largely a surgical specialty and that they could not transform themselves from obstetricians into gynecologists without the proper surgical training. There is a lesson behind all of this. The modern obstetrician should possess the surgical instinct and receive surgical training. How long will it take us to learn that obstetrics is really a surgical art? The difference between an able accoucheur and an inferior one is chiefly in the greater mechanical skill of the former.

So with gynecology—it is by the nature of things concerned with factors which demand surgical, *i. e.*, mechanical, manipulative or operative treatment. There are only three original sources of pelvic disease in women, and these are (1) injury, (2) infection, and (3) deformity. The first results principally from childbirth, the second from venereal and puerperal disease, and the third may be either congenital or acquired. The proper cure of conditions resulting from these factors depends, of course, upon removal of the cause. An injury must be repaired; an infection must be removed; a deformity must be corrected. Only by surgical means can

such ends be accomplished. Hence, we are logically led to the conclusion that the modern gynecologist should be a skillful surgeon, no matter from what field of medicine he enters his chosen specialty.

But it is not all of surgery to cut nor all of gynecology to operate. Rather is it more important to know when not to interfere. Herein lies the matter of greatest moment—diagnostic ability. This comes only through a knowledge of pelvic pathology and a long experience, seasoned with judgment and reason. A gynecological diagnosis consists not in finding this or that one thing out of gear, but in looking first for the etiological factor behind the whole affair and determining its relation to the lesions and the symptoms. Simple unassociated affections of the female genital tract are seldom seen. The majority of women coming under observation are victims of a chain of pathological events, originating often from a single cause, but progressing and gathering complications to the point at which relief is sought.

To make a correct diagnosis in this branch of medicine means more than merely discovering the diseased conditions present; it includes also a search for the focal lesion, whether it be a primary or a secondary affection, and a summing up, so to speak, of the elements responsible for the morbid state of the patient.

Not only must the pelvis be studied carefully, but the whole woman is to be taken into account. To do this successfully one should be a good physician and all that this implies. No better preparation for the gynecologist is to be found than the experience afforded by a period devoted to the general practice of medicine. It is a well-known fact that in the work of the average doctor eight out of every ten patients are women. What useful knowledge can be stored up from this material if every advantage is seized and used! The same may be said of surgery itself. Ashurst has told us: "The importance, and even necessity, of a thorough knowl-

edge of practical anatomy can, indeed, scarcely be overrated; yet it is more essential for the surgeon to be well versed in pathology and therapeutics (or, in other words, to be an accomplished physician), than it is for him to know the attachments of every muscle in the body, or all the possible variations of arterial distribution." Most mistakes in medical practice are made through carelessness rather than from ignorance, and if one wishes to do efficient work and to escape just criticism, one must, especially in the diseases of women, never overlook anything and never jump to conclusions on flimsy evidence. The question has been asked, How much gynecology is it necessary for the general practitioner to know? He should know enough, at least, to be able to make a systematic examination, leading to an intelligent diagnosis. When that is done the case is mastered.

Ideal training for the gynecologist of the present day would seem, from this meager presentation of the matter, to come from a sort of trinity of sources. A service as an interne in a large general hospital or a number of years in general practice, with its usual amount of obstetrical work and an apprenticeship as a surgical or gynecological assistant would lead up to proficiency in the practice of gynecology and supply the best possible foundation for future specialization. Obstetrics, general medicine and surgery are the three pillars of gynecology. The first furnishes the bulk of its etiological problems; the second affords help for most puzzling factors in diagnosis; the third presents the means of cure. It is difficult and unnecessary to say which of these is the most important element; they are all essential to a well-rounded knowledge of the subject. And a good gynecologist is made, not born.

FRIGIDITY FROM THE SOCIOLOGICAL AND GYNECOLOGICAL VIEW-POINT.

By C. M. Strong, M.D., Charlotte.

The gynecologist and sociologist must work together to solve many of the questions of life—the lawmaker and statesman can not correct the basic faults of society. The frequency of divorce, domestic infelicity and social evils, I am persuaded, can be greatly lessened by the competent gynecologist. There must be and is a physical cause for a great many social evils, especially in the married, and one of the greatest causes is frigidity—in the female—and the most frequent cause of the frigidity is physical defects and pathological processes. I shall attempt in this short paper to give the results of my experience along this line.

I am aware that I am treading on dangerous ground, but hope to touch it only in a scientific and medical way. How often I have been consulted as a gynecologist for this one symptom of frigidity and been told it was the cause of estrangement, infidelity and divorce, I can not tell, and I am sure it is the experience of every physician here. We can not dismiss this question; it is the physician's burden; we must look it square in the fact and act. We must lay aside false modesty and prudery, so characteristic of our age, and handle it like the ancient biblical way, not exalting Venus in a Bacchanalian revelry, and, on the other hand, pharisaical, pass on the other side with a holier than thou demeanor.

A true biblical axiom is, All things are pure to the pure. From this standpoint the physician can handle social questions and in many cases remedy them.

The basic principle of our social life is love, and love has several forms, active and passive, *i. e.,* every human being has these forms. Among the active forms we have the erotic

and libidinous, and of the passive we have complacency, love of the beautiful, æsthetic, etc."

The combination of the active and passive forms is necessary for social existence. The active, ungoverned becomes lascivious and bestial; the passive alone gives us the lazy, slothful dreamer. The active form brings out the progressive, the passive the retrogressive. The active form brings about the mating of the sexes, the passive cements and beautifies the union. Many unions have only the first, which is a species of licensed lust, while passive union can not create the best. The first is a creative function, given by the Divine Creator for the purpose of propagation, and to make it what it should be both sexes must exercise the active love. We as physicians should decry the prevalent idea, that it is coarse and vulgar for the female to exercise her active love; it should be her pride, God-given, and legal because this is so essential to perfect harmony of marital life.

The sexual act as some text-books on diseases of women would lead us to suppose, in woman is mostly passive, is not true, and where it is true is a great misfortune, and in many cases pathological thus remediable. The copulative act is mental, spinal and local. When it is mental we can by a heart-to-heart talk with them explain the duty they owe their mate, and also that they can cultivate the faculty, has in my hands effected good results.

Second class of interfered spinal reflexes we can not hope to do much for.

Third, the local function of copulation is largely a voluntary act and is performed successfully to both parties only when all the parts act in unison, and herein lies our ability to help. Starting from without inward, let us enumerate the physiological function of each organ, then we can understand how best to restore this harmonious function.

First, the labia are the gateway and must have their secretive action intact. This is mainly due to the vulvo-vaginal gland; hence any diseases affecting this must be cured, abscess and cyst must be early healed, eczema, etc.

The muscular arrangement must act also in unison, the vaginal sphincter has attachment with the sphincter ani, which is attached to the levator ani and transverse perinei, which are partly voluntary, and their action is necessary for the orgasm, hence any tear of these muscles must inhibit successful mutual coition; and here, let us remember, the mucous membrane may be intact, yet tears, and separation may be present. The successful repair of these parts has brought back in my experience domestic felicity in many cases. The clitoris, the seat of primary voluptuous sensation must be looked after. I have found the adherent prepuce in women who have borne children.

Vaginismus, that peculiar nervous phenomenon, should be looked into and remedied in many cases of domestic unhappiness, many cases requiring operation. The vagina, aside from atresia and demonstrable defects, is, we know, not subject to many diseases, and is not an active force in coition. The cervix is the seat of orgasm in the female. This is brought about by the action of the perineal muscles forcing friction upon the clitoris and the cervix directly and reflexly, which throws the uterine ligament into action, depressing and dilating the sphincter uteri, producing suction, until finally the plug of mucous in the cervix is expelled and the climax orgasm is produced. Now we can see how diseases of the cervix and pelvis may interfere with the act. Practically, I find orgasm infrequent in lacerated cervices, also malignant and other gross pathological processes. Pelvic lesion, binding and inhibiting the motility of the uterus, will do the same thing, while diseases of the uterus, viz, endometritis and small tumors do not do so. The question here might be raised, what about women who have had ablative operation? I would answer, women who have experienced libido sexualis have developed the mental sensations and fairly well perform their duty; at the same time not so much is expected of them, and this class is not included in the gynecological domain to remedy.

It might be well here to recite a few illustrative cases: Mrs. H., age 22, married two and a half years, one child, one year old, was unceremoniously left by her husband six months prior to consultation, admitted that she supposed the cause of his leaving to be her aversion to conjugal relation, which was, prior to her childbirth, perfectly normal. She had other marked symptoms of gynecic disease. Examination revealed perineal and cervical laceration, adherent retroflexion, for which an operation was successfully performed, restoring her former sexuality. Her husband has returned and the home made happy. In this case any one has almost a contempt for the extreme coward action of the husband, but it shows how the surgeon can restore the home.

Mrs. P., age 26, mother, two children, consulted me for what she termed the loss of her husband's active love. Being a different grade of man, he had accepted the inevitable, but life was robbed of one of its pleasures, both confessing, and she deploring the loss of libidinous pleasure. On examination she had laceration of perineum and cervix. Restoration of the lesion and heart-to-heart talk brought back the old pleasure and took the crow feet from the husband's rapidly seniling face.

Mrs. R. lived happily with her husband until after a severe accident, thrown from a buggy five years ago, since which time coition was very painful and became a nightmare until the mind became affected. The husband was also mad. Examination revealed an enlarged, misplaced adherent ovary in the cul-de-sac of Douglass; patient recovered, and as soon as convalescence was established the clouds blew over; mental and moral calm and happiness reigned supreme.

Mr. G., after two months marriage, consulted me, saying he and his wife had mutually decided to separate because after his first approach his wife positively refused him. After explaining to him and to her the necessity of thorough examination, she was anesthetized. Vaginismus, due to organ-

ize and painful caruncule myrtiformes was found, dissected out and everything was well. Not long since he confessed I did the work too well, as she had two children within seventeen months. Many other cases can be cited, but these will suffice. Even in my limited experience rarely does a month go by but I am confronted by this medico-moral question.

Dr. Howard Kelly—"Life's work, he tells me, is to cure the body (physical), moral (society), mental (psychic), spiritual (messiahly)."

Dr. Royster—"Many cases of domestic infelicity are attributed to diseased processes and are remedial."

Dr. Mecklenburg Polk—"Many of the social evils are medical questions to be solved by the tactful skilled surgeon."

Dr. Wyeth—"The domain of the surgeon reaches out into the broad realms of social, legal and economic questions."

CONCLUSIONS.

It is the duty of the physician to encourage domestic felicity. The physician is the only one who can discuss these social problems with women.

He can impress upon wives the necessity of cultivating the active function of love, which is so essential to conjugal peace. He can combat the prudery and falsity of frigidity as an emblem of chastity. He should examine into the causes of frigidity, which are largely local defects and diseases.

By curing diseases and repairing impaired parts he can restore the active functions of love and incidentally discover early diseases which are curable, yet later cause death.

He must look beyond restoring the continuity and contiguity of flesh—to dissecting out the moral scars, coaptating wounded feelings, ligating severed cords of love, binding up broken hearts, apply the oil of joy for the spirit of heaviness, anoint with the balm of Gilead the sin-sick soul.

Dr. Cyrus Thompson: *Mr. President:* The subject which Dr. Strong presents for our consideration lies outside the ordinary track of medical literature and discussion; so much so, indeed, that, while he was reading his paper a friend of mine on the bald-head row just behind me remarked, "What's the use of presenting us with a paper upon a subject like that at our time of life—now that we are passed off the list?" (Here Dr. ———— arose and exclaimed: "Mr. President, I didn't say any such thing!") Dr. Thompson continued: Oh, well, Mr. President, it is simply a question of veracity between two gentlemen, and the doctor is too much my friend for me to prefer my own declaration before his. So, passing that by, I shall consider not our personal, but our professional interest in the paper. And quite sure am I that its subject-matter is abundantly worth the attention of every one of us.

In both men and women there are cases of frigidity by nature, which are irremediable, but such cases are rare. In women acquired and remediable frigidity is met with every now and then. In my own practice I recall now two cases of child-bearing women in whom there was no sexual appetite or pleasure, but repulsion and disgust instead. These women yielded only from a sense of wifely duty and in order to keep their husbands from illicit pasturage. These cases were due to lacerations involving sensitive nerve terminals, and, possibly through injury to the labial plexuses, destroying the erectile function of the labia and clitoris.

And I recall a case of vaginismus in a woman married five years. Her husband had never successfully copulated with her, the slightest contact being excruciatingly painful; but he had remained with her and treated her kindly. When she came to me neither she nor her husband told me anything of this condition. She told me only that she was in poor health and had "the budges." Other physicians had dosed her for "heart trouble" and the like. I discovered the cause of her heart trouble and "the budges" when I attempted a

digital examination. She was relieved of the vaginismus and promptly became pregnant with twins. She and her husband are "happy ever after."

Beyond question, the sexual relation occupies the conscious or subconscious thought of normal men and women not less than any other one subject in the world. If our minds dwelt as constantly on spiritual themes we should all become prophets and priests here and full-fledged angels hereafter. From this relation arises the highest sensations of human pleasure, the very sweetness of life, whether in exuberent youth, fruitful maturity or pensive memories of mellow age.

And this is true as well of women as of men. We praise the virtue of women as knowing that they resist a strong impelling instinct. And yet they must not, for our good opinion, confess to passion. In our thought we must regard them as pure daughters of the ice man and moulders of "the icicles that hang on Diana's temple." And yet, in obedience to the strong law of their nature, they venture all upon the perilous sea of maternity. For the truth is that, just as it is the desire of every normal man to hold in his embrace a natural woman, so it is the strong desire of every normal woman to be held in the satisfying embrace of one natural man. And there is nothing wrong about it, nothing unnatural about it, nothing indecent about it; and yet you musn't talk about it, however much you think about it.

How grossly ignorant we are concerning this most intimate and sacred relation of the sexes, this highest and strongest instinct of life, this function which, notwithstanding the death of the individual, carries the race immortal! Husbands, wives and physicians are all grossly ignorant, and criminally reticent. If men and women were absolutely frank with each other, much could be remedied by themselves. If they will not be frank with each other, or being frank, can not by themselves remedy unhappy conditions, they should be taught that the subject is not too delicate for

the advice of a physician, and the physician should qualify himself to advise and to remedy.

Let's look at another phase of this matter. The wife may not be frigid, but the husband may be incompetent. The relation should be mutual in its satisfying quality, and both should feel better for doing a good deed. But it is not always so. The man may satisfy himself and yet leave the woman short of her highest sensation, nervous and out of tune the day after. But where is the wife that would speak frankly to her husband and complain of his insufficiency? She would think it immodest. Such a wife, being of strong moral character, would pocket her loss in silence: if she were simple-minded also, she might consider his fault her own, and become hysterical. But if she were observant and strongly human, she might be tempted to find consolation in other arms.

I have no doubt that most men would qualify as experts in this act, who are to their mates in many instances miserable failures in the performance. For men are prone to haste in this particular, whereas women, from inherited reserve or natural cause, are slower in coming to their full gratification. Who knows, therefore, how much marital infelicity, infidelity and social wreckage from what we term the badness of women, is due to this one fact? I recall just here a couplet from an old English playwright:

> "Those wives for pleasures seldom roam
> Whose husbands bring substantial comforts home."

And I may further illustrate my meaning with a dainty stanza from one of our own poets:

> "When to me you show your face,
> The time and place propitious,
> You seem an angel saying grace,
> The vision so delicious;
> I glow too fervent fault to find,
> But this sad thought glints thwart my mind,
> Aren't you rather expeditious?"

Wherefore, perhaps, it would be well for us to advise certain husbands, even though the occasion does seem urgent, to take time and go slow, and so preserve the peace and happiness of their households.

But I must not further consume your time. Let me say in conclusion, that Talmey's little book entitled "Woman: The Normal and Pathological Manifestations of Feminine Love"—and I make no doubt that Dr. Strong is familiar with its pages—is the best book upon this general subject that has come to my notice.

At the conclusion of the discussion of Dr. Strong's paper, Dr. R. H. Lewis arose and said that Dr. Thompson had recited privately to him and a few others two bits of original verse, which might not be wholly out of place as addenda in this connection. With the permission of the society, he requested their recital, and the verses follow:

Si Cimex Lectularius Sim.

("A snake crawls on her own belly; a bed-bug on anybody's.")

Suppose, Fair One, just simply now suppose,
My mission were to break a night's repose,
To punctuate proud mortal's slumber,
Abate her pride and make her humbler—
A bug I were
Of the horizontal flat variety,
Whose blood, think you,
Should round my shape to happy satiety?

Some spring-time night when sleep had kissed your eye,
To your balmy couch, a wingless bug, I'd hie;
And there I'd bite and crawl
And crawl and bite,
And you might fight and squall
And squall and fight,
But now and then I'd steal a bite;
And if, perchance, in midnight brawl between us,
You mashed me flat, a bloody death to die,
E'en death were sweet, encouched with such a Venus.

After the Grippe.

If I were talking with the Sultan to-night
In his own private room richly lighted,
And we sat puffing the long pipe of peace
And taking from labor a sweet surcease—
Just the Sultan and I, the courtiers all gone,
As if for the while all but me were slighted,
And the old chief eunuch of his soft-eyed harem
Should 'phone over for permit to go on the street
And stretch knees rusty from long idle being
And air eyes musty from rich perfumes seeing
Of beauty such as the world never saw;
And the Sultan should say, "Oh, it's against the law
And long-established custom of this Sublime Porte
For the chief to leave the girls and go out for sport;
And I just don't see any way to spare him!"
I straight should plead, "Let him go on his feet,
O grand and glorious Turk;
Some holiday for such faithfulness sure is meet,
And I will take his work."
When the Sultan should start with sudden jerk,
I should softly say, "Oh, give him the trip;
I'm as safe as he is; I've just had the grippe."

"EPHRAIM McDOWELL, THE FATHER OF OVARIOTOMY."

By Joseph Graham, M.D., Durham.

Just one hundred years ago, in the year of our Lord, 1809, Ephraim McDowell, a physician and surgeon, in the little country town of Danville, Kentucky, opened the abdomen of a woman and removed therefrom an ovarian tumor. "How simple an act this seems to all of us to-day! And yet it was a deed that its far-reaching consequences, has immortalized Ephraim McDowell, and makes us glad to pay tribute to the keen surgical instincts and the courage of the man who dared."

"Ovarian cysts had from the remotest time been the scourge of womankind. It was indeed a malignant disease, the victim of which, suffered untold agonies, and died of exhaustion." "The pathology of the disease was known, and the general adhesions that were so uniformly present in the advanced stages with frequent suppuration within the cyst,—these all, combined with the supreme respect entertained for the peritoneal cavity, forbade any hope of removal." The treatment as practiced by an occasional, unusually bold surgeon, consisted in tapping and sometimes even making a short incision to evacuate the cyst. This, however, was rarely resorted to till the patient was almost in extremis. Iodine injections were then applied and efforts made to stop the secretion of the cyst and cause it to cicatrize. These sad and hopeless cases were on every hand, and the despair of the profession.

"Like a piercing ray of sunshine out of the western sky, came the message that an unknown surgeon, in the backwoods of Kentucky had actually done the deed that solved the problem and emancipated woman from this awful curse."

Ephraim McDowell, the son of Scotch-Irish parents, was

born in Rockbridge County, Va., on March 11th, 1771. There they lived for eleven years, when they became enthused with the idea of going west, and with their household goods made their way over the mountains, where they joined their fortunes with the early founders of the town of Danville, Kentucky.

McDowell received such early intellectual training as was to be secured at the home fireside, and in private schools of the neighborhood. When he decided to make medicine his profession he returned to their former home in Virginia, and remained two or three years as a medical student in the office of Dr. Humphrey, of Staunton. In the year 1793, when twenty-three years of age, he went to Edinburgh, Scotland, and attended the University for one or two winters. "McDowell listened to the private lectures of John Bell, the most able, eloquent, and gifted of Scotch surgeons of that day. Bell at that time was greatly interested in the disease of the ovary, and in his impressive manner painted in startling colors the inevitable death to which the victims of ovarian cysts were doomed. It is said that Bell even suggested the hope that success might attend an operation for removal."

"It is natural to infer that McDowell received his inspiration for operation from John Bell, and when the proper circumstances for its application presented, he rose to the occasion and boldly applied the remedy. The courage required to meet this emergency can only be appreciated when we reflect that anesthesia was unknown; that hypodermic needles for administration of stimulants or morphine, as the case required, had not been invented. That saline injections for relief of shock were still in the future. That the operator had no equally skilled colleagues to aid in the work, and the trained nurse was as yet untrained."

His report on the case is simple, direct and convincing. He says: "In December, 1809, I was called to see a Mrs. Crawford, who had for several months thought herself preg-

nant. She was afflicted with pains similar to labor pains, from which she could find no relief. So strong was the presumption of her being in the last stage of pregnancy, that two physicians, who were consulted on her case, requested my aid in delivering her. The abdomen was considerably enlarged, and had the appearance of pregnancy, though the inclination of the tumor was to one side, admitting of an easy removal to the other. Upon examination per vaginam, I found nothing in the uterus; which induced the conclusion that it must be an enlarged ovarium. Having never seen so large a substance extracted, nor heard of an attempt, or success attending any operation such as this required, I gave to the unhappy woman information of her dangerous situation. She appeared willing to undergo an experiment, which I proposed to perform if she would come to Danville (the town where I lived), a distance of sixty miles from her place of residence. This appeared almost impracticable for even the most favorable conveyance, though she performed the journey in a few days on horseback. With the assistance of my nephew and colleague, James McDowell, M.D., I commenced the operation, which was concluded as follows: Having placed her on a table of the ordinary height, on her back, and removed all her dressing, which might in any way impede the operation, I made an incision about three inches from the musculus rectus abdominis, on the left side, continuing the same nine inches in length, parallel with the fibers of the above-named muscles extending into the cavity of the abdomen, the parietes of which were a good deal contused, which we ascribed to the resting of the tumor on the horn of the saddle during the journey. The tumor then appeared in full view, but was so large that we could not take it away entire. We put a strong ligature around the Fallopian tube near to the uterus; we then cut open the tumor, which was the ovarium and fimbrious part of the Fallopian tube very much enlarged. We took out fifteen pounds of a dirty, gelatinous-

looking substance; after which we cut through the Fallopian tube and extracted the sac, which weighed seven pounds and a half. As soon as the external opening was made, the intestines rushed out upon the table, and so completely was the abdomen filled by the tumor that they could not be replaced during the operation, which was terminated in about twenty-five minutes. We then turned her upon her left side so as to permit the blood to escape, after which we closed the external opening with the interrupted suture, leaving out, at the lower end of the incision the ligature which surrounded the Fallopian tube. Between every two stitches we put a strip of adhesive plaster, which, by keeping the parts in contact, hastened the healing of the incision. We then applied the usual dressing, put her in bed, and prescribed a strict observance of the antiphlogistic regimen. In five days I visited her, and much to my astonishment found her engaged in making up her bed. I gave her a particular caution for the future, and in twenty-five days she returned home as she came in good health, which she continues to enjoy."

From a later note we learn that Mrs. Crawford lived till March 30th, 1841, when she died in the 79th year of her age.

"The account of the operation as given above is the one that McDowell prepared, and in connection with two other cases, all of which were successful, he sent to Philadelphia for publication in the year 1816, seven years after the first operation. This report was published in a Philadelphia medical journal called the *Eclectic Repertory and Analytical Review*, October, 1816. The date of the first case was December, 1809; the second, 1813; and the third May, 1816."

"The statement that this operation had actually been performed seemed so incredible that it is no wonder that surgeons and medical editors searched the records of the cases for reasons to justify their incredulity." "In the *Eclectic Repertory*, 1817, one year after the appearance of McDowell's report, Dr. Ezra Michner, of Philadelphia, reported a 'case of diseased ovarium.' The patient died without operation

and at autopsy 'the uterus and tumor were found so intimately united as to render it impossible to distinguish or separate them.' Dr. James, of Philadelphia, a distinguished teacher of obstetrics, was mentioned as having been in consultation. After reporting his case, the author, Dr. Michner, proceeds to comment upon McDowell's operation as follows: 'It is a wish to give you a counterpart of Dr. McDowell's paper that induces me to offer this account for your disposal. While his hand holds forth the successful blade as an ensign for the bold and dexterous surgeon, may I humbly point to the dangers which lurk under the obscure and delusive indications of this species of disease. It is much to be regretted that cases so interesting to the community as those of Dr. McDowell, and as novel as interesting, should come before the public in such a manner as to frustrate the intention of becoming useful. Far be it from me to arraign the probity of Dr. McDowell. If the cases he relates are—as I sincerely hope them to be—correctly stated, no remarks of mine can detract from his merit.' "

Just one year later, 1818, in the same medical journal, Dr. Henderson, of Washington, published an article entitled, "On Ovarian Diseases and Abdominal Steatoma." "The case reported was diagnosed as a tumor not connected with the uterus or bladder. The tumor was tapped but no fluid was found and death followed three weeks later. At autopsy the tumor was found to be a steatoma of the deep layers of the abdominal wall projecting into the abdominal cavity, and weighed about nine pounds. A small dermoid cyst of the right ovary was also discovered." At the close of this report the author comments upon Dr. Michner's criticism of Dr. McDowell's operation, closing with the remark that "Dr. Michner will probably live to see the time when he will with pleasure acknowledge the inapplicability of the views held out in his paper to the power of the surgeon's discernment and the effect of his knife."

"This article of Dr. Henderson's came to the notice of Dr.

McDowell. He thereupon indited a letter to Dr. James, the consultant in Dr. Michner's case, replying to the latter's criticisms. He says, "Since my former communication I have twice performed the operation of excising, which cases are subjoined." The length of incision in McDowell's first case was stated in the report at nine inches, but in the letter he says, "As I did not actually measure the incision, it would have perhaps been better to have said an incision was made about three inches to the left of the musculus rectus, extending from the margin of the ribs to the os pubis on a woman whose abdomen was distended by a tumor to an enormous size."

The statement that McDowell found his patient making her bed on the fifth day after the operation had also been a subject of comment. To this he retorted, "The doctor's skepticism alone appears to have carried him through the statement, and I am surprised that he will even admit the fact of her returning home on horseback in five and twenty days after the operation, a distance of seventy miles, and in the depth of winter."

In reply to the alleged meagerness of his report, he adds, "I thought my statement sufficiently explicit to warrant any surgeon performing the operation when necessary, without hazarding the odium of making an experiment, and I think my description of the mode of operation, and of the anatomy of the parts concerned, clear enough to enable any anatomist, possessing the judgment requisite for a surgeon, to operate with safety. I hope no operator of any other description may ever attempt it. It is my most ardent wish that this operation may remain, to the mechanical surgeon, forever incomprehensible." If we had no other knowledge of McDowell's mental cast and surgical ideals, these words would stamp him as a surgeon of broad and elevated view, with lofty conception of the science and art of surgery, and keen appreciation of the advanced ground on which he trod.

Upon this *prima facie* evidence rests the claim of Ephraim McDowell to the honor of being the first ovariotomist. "Dr. Gross, of Philadelphia, in investigating this subject many years ago secured the reports of three more cases which McDowell had written in letters to various surgeons who had sent him the cases for operation." Of the eight cases reported by McDowell (four in white and four in negro women), five were completed, three were unfinished but recovered. Of the five completed operations (two white, three black), one, a negro, died. Mortality of completed operations, twenty per cent.

In addition to this we have the testimony of his nephew, Dr. Wm. A. McDowell, who was for five years his pupil and assistant, who tells us that his uncle performed ovariotomy thirteen times, with eight recoveries. This statement is also attested by Dr. Alban G. Smith, an assistant of McDowell, and himself a successful ovariotomist during his subsequent career.

"The second ovariotomist in this country, and indeed in the world, was Dr. Nathan Smith, then Professor of Surgery in Yale College, New Haven, Connecticut. This operation was as truly original as Dr. McDowell's, Dr. Smith being at the time entirely unaware of Dr. McDowell's work. It was performed at Norwich, Vermont, July 5, 1821, and was "reported in the *American Medical Recorder,* Philadelphia, for June, 1822; also in the *Edinburgh Medical and Surgical Journal* for October, 1822." Dr. Smith's teaching differed in several details from that of McDowell. "He made a short incision below the umbilicus, only three inches long, tapped the cyst, and drew out the sac. The omentum being adherent, it was detached and two arteries in it tied with leather ligatures (narrow strips cut from a kid glove). Two arteries in the pedicle were also tied, the latter being dropped into the peritoneal cavity and the incision closed. The cyst contained eight pints of fluid. Convalescence was

smooth and uneventful. The patient sat up and walked at the end of three weeks."

"Dr. Smith states that he was led to perform the above operation from the fear the patient had of speedy death from the growth of the tumor, and from the fact that he had learned from an autopsy, and from several specimens of dropsical ovaries in his possession, that adhesions were absent, or so slight as to be of no practical consequence in an operation for removal." He further states that, "The operation pursued in the above case is the same as I have described to my pupils in several of my last courses of lectures on surgery. The result has justified my previous opinions."

"America is entitled to the distinction, therefore, not only of having two originators of ovariotomy, one with the long incision and one with short, but she also had two educational centers directing the attention of the profession thereto. Philadelphia, at the time McDowell sent there the reports of his five operations for removal of diseased ovaries, to be published in the *Eclectic Repertory,* was the greatest center of medical teaching in this country. The medical journal referred to was as respectable and widely known as any other then published in the United States. Not only had the reports of these unique cases in all their details been brought to the notice of the large number of readers of this periodical, both at home and abroad, at the date in question; but there had also appeared from time to time, in the subsequent issues of this journal, sharp criticisms of the teachings of McDowell, as well as articles in defense of them, not only by himself but by others. All this, therefore, tended to prove beyond question that there was an extended knowledge among intelligent and well-informed physicians at that period of the great triumphs of the Kentucky surgeon. Besides this, Professor James, then one of the ablest teachers of obstetrics and diseases of women in this country (to whom Dr. McDowell directly addressed his paper, September, 1819, accompanying

it with a dignified and convincing defense of the principles of his operation), availed himself of every opportunity to make known to his large classes the character of these brilliant operations and the influence they would have upon the profession."

"A most interesting feature in the establishment of the authenticity of McDowell's cases now presents itself. In recognition of the obligation McDowell felt to his former teacher, John Bell, of Edinburgh, for his inspiration in undertaking his first experiment, as well as a possible feeling of pride in the pleasure his former teacher would experience in knowing that one of his pupils had accomplished the deed that he had pictured as an ideal procedure, he sent a duplicate copy of the report of his cases to him at Edinburgh. It so happened that John Bell at this time had gone to the continent for his health, where he remained until his death. The manuscript therefore fell into the hands of Mr. Lizars, who had charge of Mr. Bell's patients and professional correspondence. McDowell's report of his first three cases intended for Mr. Bell was allowed to slumber in Mr. Lizars's possession for more than seven years, when Mr. Lizars published a case of attempted ovariotomy by himself. As a justification of his bold undertaking, and probably with the idea of doing justice to McDowell, appended thereto McDowell's report; this was in 1824. Lizars had mistaken a phantom tumor with thick abdominal walls for an ovarian cyst; had incised the abdomen from two inches below the ensiform cartilage to the crista of the os pubis. He found no tumor and closed the incision."

Peaslee's comment upon this reads, "In such circumstances Dr. McDowell's report of three cases afforded a precedent for Lizars's operation, if it did not endorse his diagnosis."

"This appearance of McDowell's report came as a startling piece of intelligence to the professional world of Great Britain. It was received with great incredulity. The edi-

tor of the *Medical Chirurgical Review*, January, 1825, remarking: 'We can not bring ourselves to credit the statement.' He also adds in a succeeding number of his journal: 'In despite of all that has been written respecting this cruel operation, we entirely disbelieve that it has ever been performed with success, nor do we think it ever will.' "

Through the history of the ages we find that when a new idea has been suggested, or a discovery made by a physician or surgeon, the first impulse of the profession has been to denounce it in bitter and sarcastic terms, and to condemn the innovator to the scorn and condemnation of his professional brethren. This was true of Harvey, Jenner, Pare, Oliver Wendell Holmes, and all the rest.

The essential points of McDowell's operative technique are: (1) The parietal incision was made external to the border of the rectus muscle; (2) the pedicle was ligatured before opening and evacuating the cyst; (3) care was observed to cleanse the peritoneum of fluids; (4) drainage was provided by bringing the ligature out through the lower angle of the incision and ligature eliminated in that way; (5) the operation occupied only twenty-five minutes, expedition resulting more from the absence of an anesthetic, doubtless, than otherwise. In the report of the second case, he says: "I laid her side open." In the third case he adopted the median incision, which he indicates thus: "I changed my place of opening to the linea alba." In all his cases he ligatured the pedicle before separating adhesions or tapping the tumor. In the third case he mentions that the ligatures were not released for five weeks, at the end of which time the cord was taken away.

McDowell in his first cases established about all the distinctive and important principles in the technic of oophorectomy. Except in the one particular of aseptic precautions it is surprising how minutely, especially in cases of large tumors, the ovariotomist of to-day follows him in the suc-

cessive steps of the operation and how few improvements have been made.

To McDowell we are therefore indebted not only for demonstrating the possibility of excising an ovarian tumor but also for exhibiting at his first operation an almost perfect technic. In reporting his cases he said almost nothing, however, about the after-treatment. Undoubtedly it was this omission that gave occasion for the doubts and criticisms that were showered upon him. Prompted, doubtless, by a desire to avoid this unfortunate experience, his early successors, especially Lizars in 1824, and Charles Clay in 1843, elaborated the after-treatment to the fullest extent. The thoroughness with which the early operators thought out the minute details of their operations and carried them into execution is indicative of their keen surgical sense.

"It is interesting to note how carefully they considered and anticipated all the questions that we have been contending about." Where, indeed, is to be found a more pointed illustration of the saying that "The vaunted discoveries of the present are only the commonplaces of the past?" For instance, "Clay discusses the preliminary treatment of the bowels, recommending compound Jalap powder and inspissated ox-gall. Lizars advocated a temperature of 80 degrees for the operating room; Clay 68 degrees to 70 degrees. They both used and praised the long incision from the border of the ribs to the pubis. Clay wrapped the intestines in a cloth dipped in a solution of lard and hot water, emphasizing the importance of handling them as little as possible. He thought the adhesions were severed best by cutting rather than tearing with the fingers, insisted that as little opium and stimulants should be given as possible, and even used the rectal tube for the escape of flatus."

The remarkable feature of the after-care of their patients was bleeding. It is interesting to note what unbounded faith the early operators had in it. Lizars applied this treat-

ment in a most heroic manner in his after-treatment of ovariotomy. He says, in describing his first case: "Six hours after the operation, bled her to syncope, which occurred when eleven ounces of blood were extracted. Next morning skin felt hot, tongue was white and a little crusted, so I repeated the bleeding to syncope, which occurred when thirteen ounces were abstracted. After the bleeding she felt easier, and by evening the symptoms had disappeared. Toast, water, tea, coffee and warm gruels were administered; also five drops of opium, which stayed on her stomach. Second morning felt much better; breathing natural, pulse 90 and soft, skin cool and soft, tongue white and moist, the bladder still required the catheter. Conditions continued favorable until the evening of the third day. Wound dressed and found in good condition. At 8 p. m., pain in right iliac region, darting upward; pulse 108, full and strong; skin hot and some thirst. I therefore bled her to fainting, which followed after sixteen ounces were abstracted. In an hour afterward a domestic enema was given and, lastly, the sedative of opium; enema operated well, and she fell asleep."

"Time does not permit me to dwell upon the courageous work of our own countrymen, John and Washington L. Atlee, of Kimball, and of Peaslee." "All of whom, in the face of bitterest opposition and denunciation on the part of their professional brethren, stood by their surgical convictions, responded to the call of suffering women, and compelled the acceptance of oophorectomy as a justifiable operation."

The dominant characters in this great drama, however, were Ephraim McDowell, of Danville, and Charles Clay, of Manchester, England. From the brain and hand of McDowell the operative technic sprang forth almost in its perfection, and the painstaking after-treatment of Clay elaborated the operation into a complete procedure.

Ovariotomy has been termed "an operation without its parallel; an operation fraught with happiness." Koeberle,

of Strasburg, said of it: "It is one of the most convincing titles to glory, of our surgical epoch." "Surely in its far-reaching potentiality it ranks second only to one other great discovery which our country has given to surgery and the world, viz: Anesthesia, and together with Listerism, asepsis forms the trinity of modern surgical achievements."

"Ephraim McDowell was an amiable, simple-hearted man, free from worldly ambition, in love with his profession and devoted to his work. He had been well grounded in the broad principles of surgery as understood in his day, and being thrown upon his own resources in his life on the frontier, he unhesitatingly applied them in whatever way the individual cases demanded. The characteristic of the man's life was simplicity, and therein was revealed his greatness. Jackson says, "His practice extended in every direction; persons came to him for treatment from all the neighboring States, and he frequently took horseback journeys for hundreds of miles. We may say that he stood facile princeps in surgery west of the Alleghanies. He is to be accepted as being in the habit of performing every surgical operation then taught in the science. In a most accurate and painstaking sketch of McDowell by the late Dr. John D. Jackson, of Danville, he states that in 1822 McDowell made a journey of several hundred miles on horseback to the Hermitage, the residence of President Andrew Jackson, near Nashville, Tenn., to do an ovariotomy in the case of a Mrs. Overton. He was assisted in the operation by General Jackson and a Mrs. Priestly. Mrs. Overton recovered. McDowell was the guest of General Jackson during his stay in the neighborhood. Another one of his patients in Tennessee was James K. Polk, afterwards President of the United States, upon whom he did lithotomy when the patient was fourteen years of age." Either tradition or imagination has depicted the operator fearlessly doing his work while a mob gathered about his house threatening his life on account of the fancied

reckless hazard of life in attempting an untried experiment. Dr. McMurtry says: "Having been born and reared near Danville, and educated there, and having known some of McDowell's contemporaries, I am sure this story is pure fiction, without any semblance of facts for its basis. McDowell was perhaps the most prominent and popular citizen of the community, commanding the respect and confidence of all classes, and known far and near as a great surgeon. The house in which Mrs. Crawford underwent operation and remained while under treatment is not known. It is not probable that such an operation was done in the doctor's office; but more probably in some bedroom prepared for her care and nursing after operation.

"In 1822, Dr. McDowell married Sarah, a daughter of Isaac Shelby, Kentucky's first and greatest governor, a soldier and statesman, with whom he lived most happily and raised a family of two sons and four daughters, only three of whom survived him. Mrs. McDowell survived her husband by ten years. As a citizen McDowell took an active part in all movements for the welfare of the community. He was especially interested in education and contributed liberally of his time and means to provide educational facilities so much needed at that time. He was a member of the first Board of Trustees of Center College, of Kentucky, now Central University of Kentucky. He contributed personally the lot upon which Trinity Episcopal Church in Danville now stands. In his fifty-ninth year, while in the full vigor of life, he was seized with an acute fever and died on the 20th day of June, 1830, after a brief illness."

McDowell did not live to see his operation adopted by the profession as a recognized surgical procedure. It must have afforded him no little gratification, however, to read in the *Medico Chirurgical Review*, of London, October, 1826, just after McDowell published his fourth and fifth cases, the recantation of its editor, Dr. Johnson, who had previously af-

firmed that he did not believe the cruel operation had ever been performed with success nor did he think it ever would. He said: "A back settlement of America—Kentucky—has beaten the mother country, nay Europe itself, with all the boasted surgeons thereof, in the fearful and formidable operation of gastrotomy with extraction of diseased ovaries. In the second volume of this series we adverted to the cases of McDowell, of Kentucky, and expressed ourselves as skeptical respecting their authenticity. Dr. Coates, however, has given us much cause to wonder at the success of Dr. McDowell, for it appears that out of five cases operated upon in Kentucky by McDowell, four recovered after the operation and only one died. There were circumstances in the narration of the first three cases that caused misgivings in our mind, for which uncharitableness we ask pardon of God and Dr. McDowell, of Danville."

In 1852, twenty-two years after the death of Ephraim McDowell, Prof. Samuel D. Gross, then a resident of Louisville, presented to the Kentucky State Medical Society a sketch of the life of and original surgical work of the first ovariotomist. Professor Gross brought to his task his characteristic accuracy and thoroughness of investigation. He engaged in a laborious correspondence with the family, relatives and contemporaries of McDowell, and collected all available knowledge bearing upon his life and character. This sketch was subsequently incorporated in Gross's American Medical Biography, published by Lindsay and Blakiston, of Philadelphia, in 1861, a copy of which was given me by Dr. William Strudwick, of Hillsboro. The critical investigations by Professor Gross of the original reports of various operators, together with the incontrovertible testimony presented as to McDowell's priority, placed McDowell's claims beyond all dispute and established firmly his position as the originator, by successful accomplishment, of the radical cure of ovarian tumors by abdominal section.

"In 1879 the Kentucky State Medical Society erected over the grave of McDowell, at Danville, a monument to perpetuate his name and fame. The dedication of this monument on the 14th day of May, 1879, was the most imposing event in the annals of the medical profession of Kentucky. The address of the occasion was delivered by Professor Gross before a large audience composed of members of the State Medical Society, officials of the State, and a large concourse of prominent citizens. Upon the speaker's stand were seated the Governor of the Commonwealth, the Secretary of State, and other officials; the President of the American Medical Association (Dr. Lewis A. Sayre); the venerable Dr. Gilman Kilman, of Lowell, Mass. (who had performed ovariotomy nearly three hundred times); and numerous other eminent American surgeons. Among the tributes to McDowell presented on this occasion were letters from Sir Spencer Wells, Oliver Wendell Holmes, T. Gaillard Thomas, Edmund Randolph Peaslee, Theophilus Parvin, and others. The oration of Professor Gross is a masterpiece of biographical literature, quite worthy of the occasion and its distinguished author."

A broad and searching examination of all the claims put forward by aspirants or their friends to the honor of antedating McDowell has proved them entirely groundless. The wide dissemination of the facts upon which this decision rests, and the ripening influence of time, have brought the professional and scientific world into accord upon this subject. McDowell is universally recognized throughout the world as the originator of the operation and entitled to be proclaimed the "Father of Ovariotomy."

The distinguishing mark of the meeting of the American Gynecological Society, April, 1909, was the commemoration of McDowell's great achievement. The President, Dr. J. Riddle Goffe, paid a beautiful tribute to McDowell. Dr. Lewis McMurtry, of Kentucky, delivered a very accurate

and comprehensive historical review of McDowell and his work. Other noted authors read papers on McDowell's successors in America, England, France and Germany. I have quoted and copied freely from the papers of Drs. Goffe and McMurtry which were published in the *American Journal of Surgery, Gynecology and Obstetrics.*

A REVIEW OF ONE HUNDRED CASES OF ABDOMINAL OPERATIONS.

By W. P. Whittington, Asheville.

I do not expect to tire your patience with a tedious report of a hundred operations, but wish to call to your attention some of the important lessons that have impressed themselves upon me in my work in abdominal surgery. In the first place I want to emphasize the importance of the proper preparation of the patient before any serious operation, but more especially abdominal section.

In emergency cases we will have to be content with a hurried and limited preparation. In these cases the patient can have as thorough a bath as circumstances will permit, an enema may often be given, and such medicines administered as may be necessary to relieve pain or shock and tone up the circulation. The site of operation will be hurriedly prepared, and we will often be surprised at the good results we get in these hurried cases. If the case is one demanding an operation for a sub-acute or chronic condition the patient should be more carefully prepared. The patient should be carefully examined for the detection of any other pathological condition aside from the one for which we expect to operate. The heart, the arteries, the lungs, the throat and nose should be examined to determine whether or not the circulatory and respiratory organs are in good condition. The urine should be tested for albumen, sugar and casts, and in many cases a blood examination will aid us in diagnosis and treatment. Any abnormal conditions should be relieved by appropriate treatment and the patient put in the best possible condition without unnecessary delay or worry before operation is undertaken.

By pursuing such a course we will be rewarded by better results than when we rush into an operation without proper preparation.

The series of cases referred to in this paper include operations on the stomach, gall bladder, liver, appendix, uterus, ovaries, tubes and the intestines.

My experience in operations on the stomach is very limited, but can advise that whatever may be the cause for operation on the stomach the operation should be done with as little handling as possible, and as quickly as possible consistent with thoroughness. In one case of gunshot wound of the stomach, in which Dr. McBrayer was associated with me, the ball passed entirely through the stomach and lodged in the muscles of the back. Both openings were closed with reinforced Zernie Lembert suture, and patient made a quick recovery. In this same case the ball made a considerable rent in the edge of the right lobe of the liver, which bled very freely. The bleeding was stopped by the application of the Paquelin cautery. Patient made a quick recovery.

In the gall bladder cases I have had nothing but good results except in one case of malignant complication. A number of cases of so-called chronic indigestion were cured by draining a chronic cholecystitis where there were no stones, and the results after the removal of stones has always been satisfactory. The important points in operation for gall stones is to be sure that all the stones are removed, not only from the bladder but from the ducts as well, and that the attachment of the gall bladder to the parietal peritoneum be made in such a way as to produce the least possible dragging after the wound is healed.

Of all the abdominal organs the appendix continues to demand a large share of the surgeon's attention. Appendicitis attacks all classes and all ages, but is more common in youth and early manhood. We may have it acute, sub-acute, chronic, catarrhal, gangrenous, perforative, obstructive, relapsing, etc. While there are a few of our confreres who do not believe in the removal of the appendix except as a last resort to save life, most physicians of the present day, whether they do surgery or not, are agreed that every dis-

eased appendix is a bar to the usefulness and a menace to the life of its possessor, and should be removed at the most opportune time. When is the most opportune time is about the only question upon which surgeons disagree. This question will largely depend on the location and environments of the patient, the character of the attack, and the stage of the disease at which the surgeon is called. The time to operate is when we can give our patient the best possible chance for recovery. Professor Oschner, of Chicago, has done more to lead to a proper decision of this question than probably any other man living. Oschner's rule, in short, is to avoid operation during the critical periods of the disease, and use such methods as will improve the condition of the patient by allaying inflammation, and allowing nature to wall off infected areas. In acute appendicitis, if opportunity offers, operation should be done in the first thirty-six hours. After this period symptoms and the condition of the patient should enable us to decide as to the propriety of operation. Up to the end of thirty-six hours the disease is acute and there is little or no pus formed, adhesions are few and weak and may be broken up without danger of causing an extension of the inflammation.

If there is early rupture of the appendix and suppuration has already begun, all food and purgatives should be withheld and operation should be postponed until nature has walled off the suppurating area by strong adhesions. In these cases it will not be necessary to break up the adhesions, but only to open and drain the pus cavity. If the appendix is near the opening and can be removed without causing communication with the pus cavity and the peritoneal cavity, it should be done, otherwise it should be left.

In one of my cases I found the appendix completely separated, lying loose in a small pus cavity which contained fæcal matter from the still open stump of the appendix. The cavity was carefully wiped out and lightly packed with

gauze drains. In a few days the hole in the bowel closed and the patient was well in three weeks.

It is a great mistake to give food and purgatives in the early stages of acute appendicitis, except a laxative may be given at the very outset of the attack. After the first few hours, if there is constipation and vomiting, all food and purgatives should be withheld, and peristalsis will cease and nature will have a chance to wall off the infected area. A small dose of morphia hypodermically may be given early to allay pain and stop peristalsis. Opiates should not be continued, as they disguise the true condition and cause mistakes in diagnosis and treatment. After the acute stage has passed and the system of acute inflammation and infection have subsided an operation may be done without much danger. If the case should continue to grow worse, due to extensive infection and general peritonitis, we may be forced to operate as a last resort. Some of these patients may be saved by thorough drainage and the Fowler position. The only case of appendicitis that I have ever lost after operation was one of this class where both early and internal operation had been refused, but the parents were anxious to save the life of the patient after rupture of a pus sac in the abdominal cavity, causing general septic peritonitis. I usually adopt the gridiron incision as nearly over the appendix as possible. This gives great security against hernia, and can be enlarged in any direction if necessary after the opening is made where it is desirable to obtain more room or better drainage. The best way to dispose of the stump is in inversion after crushing. The purse string suture should be applied in such a way as to include the appendiceal vessels in an extra loop, which constricts them when the ligature is tightened. If desired, the vessels may be secured by a separate ligature, which will not prevent the inversion of the stump. The denuded mesentery should be turned in on itself with fine silk or catgut suture so as to leave practically no denuded surface to form adhesions.

Along with the appendix the female pelvic organs claim a large share of the surgeon's attention. In ovarian tumors I wish to report two of especial importance. The first was a large sub-ligamentous, sub-peritoneal cyst in a woman twenty-one years old. The cyst sprang from the lower posterior par-ovarium and grew downward and backward behind the posterior fold of the peritoneum. As the size increased it had extended upward, pushing the peritoneum forward until it extended up nearly to the left kidney. The tumor filled the lower and left side of the pelvis, pushing the uterus and abdominal organs up above and in front of it. The intestines were packed away after opening the abdomen and the posterior peritoneum was opened and the cyst emptied. The sac was then peeled away from the peritoneum like separating two pieces of cloth. The lower portion of the sac was in such close apposition to the iliac and other pelvic vessels and the ureter that it was very difficult to remove it without wounding some of them. It was trimmed off as near its base as possible, the bleeding stopped, and the wound closed except a small cigaret drain, which was removed on the second day. Patient recovered without complication.

The other case to which I wish to call your attention is one of adnea papilloma of the ovaries of a cystic character. This patient had suffered with ascites for more than two years, and had had nearly one hundred gallons of fluid taken from the peritoneal cavity. The ovaries, tubes and uterus were removed four years ago and the patient is now enjoying good health, there having been no further accumulation of fluid in the abdomen.

Some of the gentlemen present will be interested in the specimen which I will pass around.

My hysterectomies include quite a number for fibroid and myomatous conditions, all of which recovered. I wish especially to emphasize the importance of early diagnosis and operation in carcinoma of the uterus. I am thoroughly convinced that carcinoma in any part of the body is in the be-

ginning purely a local condition, and if thoroughly removed before other organs and the general system are infected, which may be months and even years, would be as effectually cured as would a crushed foot by amputation of the leg. I have now under observation several cases for whom carcinomatous uteri have been removed from two to seven years, and are all perfectly well. Other cases where I have operated after the lymphatics and neighboring tissues have become involved have died from recurrence in the pelvic tissue or distant organs, due to metastasis or extension. Every case of bloody discharge after the menopause or menorrhagia or metrorrhagia about the age of forty should be carefully examined, and if there are evidences of carcinoma the uterus and adnexa should be thoroughly removed. I have operated on nine cases of tubal pregnancy with one death. This death was due to sepsis, I suppose, taking place from the uterus, and due to a delay of three weeks, during which time patient had three separate attacks of pain and collapse. Immediate operation was advised on first day of attack, but refused. Operation was done as a last resort when the temperature was one hundred and four, and pulse one hundred and forty.

One case of tubal pregnancy was interesting on account of its perfect development and history. This case I reported at the last meeting of the Tri-State Society at Charleston. There had been no menstruation or casting off of decidua for five and one-half months. Patient had no symptoms of pregnancy except amenorrhea and a slight enlargement of the lower abdomen. At the end of five and a half months she had pains and red discharge and sent for the doctor, who thought she was in labor to abort. After twenty-four hours the pains subsided and the flow gradually ceased. Two months later patient suffered with another attack of pains and a profuse hemorrhagic discharge. Her physician thought there was something in the uterus that should be removed, but on examination under anesthesia found the uterus empty, but a tumor which he thought was fibroid on one side of the

uterus. She came to me and I removed this splendid specimen. The points of interest in the case are that there were very few symptoms of pregnancy. There was no casting off of decidua. The hemorrhage at the end of five months was due to rupture of a vessel inside of the gestation sac, and the pains were due to contractions in an effort of nature to correct an abnormal condition. The second attack was only a repetition of the first. The tube, as you will notice, is greatly hypertrophied and dilated, and was strong and perfectly intact when removed.

I shall only mention one other case, and that is one of perforation in typhoid fever. In the beginning of the third week the patient, a young lady of twenty-one years of age, was suddenly attacked with pain in the ileocæcal region. There was nausea and some vomiting. In a few hours there developed a small tumor in the cæcal region, and the pain continued with nausea and constipation. I was called in on the second day and diagnosed perforation, but could not account for the tumor. There was considerable tympany, with high temperature and rapid feeble pulse. I decided to operate as a last chance. On opening the abdomen I found an intussusception of the ileum near the cæcum, a part of the ileum actually passing into the cæcum. On withdrawing the invaginated portion of the ileum an opening about one-eighth by one-fourth of an inch was found, and several other ulcers nearly through the coats of the bowel. Fifteen inches of the ileum was gangrenous. It was removed and an anastomosis was made near the cæcum by means of a Murphy batton. The interesting feature in this case was the invagination of the portion of the ileum containing the perforation, which looks like an effort of nature to pass out a diseased portion of the bowel. The patient died from typhoid, septic peritonitis and shock, the last two probably due to delay in operation. By immediate operation many patients with typhoid perforations may be saved.

THE COUNTRY MIDWIFE.

By H. B. Croom, Maxton.

Having come in contact, during the few years of my professional career, with some sad pictures of what might be termed criminal negligence, I concluded to pay my respects in this short paper to the country midwife, or to the ignorant class of women who have announced themselves midwives.

Perhaps every physician in country practice has seen all that I have seen, and perhaps each one has the same impression of this situation as I have; yet it seems to me that it is a matter we are all inclined to pass lightly over. It is for this reason, therefore, that I desire to introduce this subject, hoping that we as a body of intelligent men will think more seriously of what may seem trivial, and take some steps to improve what seems to me a serious evil or a great imposition upon the people at large.

How many of us have not been called to treat a puerperal woman, about the 6th or 7th day of her confinement, with a report that some old woman has delivered the case, that the patient did beautifully for 4 or 5 days; but suddenly she "was taken," as they will tell us, "with chills and fever?" The so-called midwife, in attendance, will usually insist that all women have fever, and often administers a little quinine for the chill, and sends to the drug store for a few headache tablets for the headache. The infection is there, and, without any dispute, comes from the filthy hands of the old woman, or her neglect of proper methods of cleanliness—notably, soiled bedding.

These cases, we all know, are frequent in country practice, and to say the least they are deplorable. I wish not to be misunderstood in my remarks, and will therefore say that I recognize the field and the convenience of having a good servant around in those cases, not able to employ a graduate

nurse; but I am speaking especially of the ones who know so much and try to do so much, that they urge their patrons not to call a doctor, unless they see the patient is critically near to death. Their methods are too ridiculous to discuss. Their results are sufficient proof of their total disqualification to take into their hands the life of the mother and the unborn child. No one will deny that the ignorant negro who goes out doing this class of work alone is taking into her hands a human life, and is far more liable to do harm than the one who administers herbs and roots. Still we have restraint on the individual with herbs and roots, and the country midwife is allowed to continue the free and liberal distribution of streptococci, and other pathogenic organisms, among those unfortunate women, whose poverty prohibits the employment of a competent obstetrician, or perhaps whose mental powers are such as to retain the impression, as I have had some seemingly intelligent women remark, "they do better with the old woman than with the doctor." This remark is worthy of a moment's thought, and should be a warning to us in the observance of a strict technique, and holding as far as possible, in purely normal cases, to nature and her methods.

And now, as to the remedy of an evil, if we have agreed that it is such. First, who should remedy it? Who knows of the existence of the evil? To whom do the best people look for information, as to what is right and what is not right, in matters pertaining to health and sanitation? I contend that the country doctor can at least mould a sentiment against the negligence of important things, and he should, therefore, pay some attention to such characters as I have referred to in these remarks. Could we not at least have some local regulations in our small towns, and require those who wish to engage in this occupation to report to the health officer for a scrub brush and soap, if nothing more? We can warn the people of the dangers of depending upon

this ignorant class of help, in so important a matter, instead of allowing, as I am inclined to believe that some of us do, our constituents to say that they will expect us to be ready to come in case the midwife can't handle the situation. Tell them right there that there is no question as to the ability of the midwife, and require them to make their own choice. Of course, it goes without saying, that such action on the part of the medical profession will soon stop the promiscuous patronage of this unworthy class of people, and surely, if we have any respect for the scientific phase of the obstetrical art, we are not willing to entrust it to an incompetent hand.

IMPORTANCE OF EARLY RECOGNITION OF THE INDICATIONS OF CÆSAREAN SECTION.

By H. McKee Tucker, Raleigh.

Just how the term Cæsarean section originated, is masked in obscurity, but probably from the verb, cæderae to cut. Even in early Roman history, some title of the operation probably existed, for it is recorded that the ancient ruler, Numa Pompilius, had enacted a law, requiring the child to be extracted in women well advanced in pregnancy after death—that the two might be buried separately. From Venetian sources a case is recorded in 1491, and somewhat later a Swiss peasant is said to have performed the operation on his own wife after she had died. Later came up the question of how much risk there was of doing the operation on a living woman. The first operation on the living was performed by Trautman in 1610. The operation should never have been seriously considered under the technique that existed prior to the advent of antisepsis. It is to say a few words about the indications, the importance of detecting early these indications, and the technique of the operation that prompts me to write this paper. There are two classes of indications, namely: Positive (when it is impossible to deliver the child in any other way) and relative (when it may be possible to deliver by some other method).

Now, in the positive class are those cases where the true conjugate is six and one-half centimeters or less, with a dead child, and seven and one-half with a living child. To try to deliver by any other method would incur in these cases more risk to the mother than would be incurred by a Cæsarean section, not even counting the *murder* of a living child.

It is the second or relative class where it is possible to deliver by some other method that calls for the most astute judgment in deciding what course to pursue. Here is where

excellency in obstetrical science is supreme; for in the proportion of one's ability to grasp all the conditions present in the mother and child in favor or against Cæsarean section, in favor or against one or the other courses that might be pursued, in the same proportion is he capable of giving the best advice to the woman and her relatives. Therefore, in order to be able to advise wisely and discreetly, the doctor must know not only the size of the pelvis, but must recognize the variety of the deformity present, the sizes and deformities of the child, anomalies of the soft structures, such as tumors, etc. Just so much as one is able to recognize these, just so much is his judgment and advice worth. For an infant that will be delivered through a moderately contracted conjugate in a simple flat pelvis alive could not be in case of a generally contracted pelvis. The one thing that will save more lives than anything else, in case of contracted pelvis, is the early recognition of this deformity, and if this deformity is so great that it is impossible for the living child to be born by the natural passages, then an earlier abortion should be performed. If, however, the contraction is such that a seven and one-half to an eight month's fœtus could be born, then wait and produce premature delivery at that time, and thereby avoid destroying an infant at full term, or performing some other major operation. Of equal importance is the recognition of impossible presentations, such as posterior, face, etc., before impaction occurs. The one way these errors can be avoided is a systematic examination and measurement of each patient as soon as she is thought to be pregnant, and as soon and as often thereafter as is necessary, certainly always just before she goes in labor. If this was always done, it would often save a doctor much just censure. It is a *fact* that many have been the lives sacrificed by disregarding this precaution, and assuming as is too often done by the general practitioner that *everything* is all right, finally stumbling on the fact that some insuperable obstacle prevents the child's birth, after

the poor woman is worn out by hours of agony and labor. After the words of O. W. Halney, "It is as a warning rather than as a rebuke that I call up the memory of these irreparable errors and wrongs, for no tongue can tell the heart-breaking calamity they have caused, the strength of manhood they have bowed into the dust, and the number of mutilated infants they have bequeathed to tiny coffins." It is such cases as these that raises the mortality of Cæsarean section, and causes it to be regarded by some as an operation out of question. I believe that this operation, if performed before labor begins or early thereafter, without her being infected by previous examination, that the mortality would be almost nothing.

This brings me down to considering those cases where it is impossible to deliver other than by a section, symphysiotomy, or a destructive operation. As regards symphysiotomy, I believe under favorable conditions Cæsarean section is preferable. So this narrows it down to section or embryotomy. This is one of the hardest questions a doctor will ever have to decide for any one. It means murdering the child, a living human being, besides subjecting the mother to some increased risk. While, in the other, it means nearly always saving the baby, and forever preventing any more conceptions, yet at the same time adding some increased risk to the mother's life. Which of these procedures to advise, makes me hesitate, and I feel that I dare not, especially to a body so wise as yourselves, but must only leave it to the judgment of each individual one to decide what is best in each individual case, with the various circumstances that surround it, but let me say that it is my earnest hope that those who decide on Cæsarean section, will decide early, and thereby give his patient the best possible chance, for upon this so much depends.

It has always been the doctrine of the Roman Catholic church, that it is a mortal sin to cause the death of the child in order to deliver it.

This may be a help to enable you to decide what is the best course to pursue in patients of this faith.

As regards the operation, I have little to say, as it is so well treated of in the text-books. I will only speak of a few points in the technique which, to me, seem most pertinent, and refer only to hysterectomy. After the skin and fat is incised from above the umbilicus to the pubis with a knife, make a small opening into the abdominal cavity above, then with the finger of one hand through this opening you raise the abdominal wall, your assistant doing likewise on the other side, this raises the abdominal wall from the viscera, thereby avoiding niching or cutting any of these, and then rapidly cut through the remaining layers the length of the skin incision with heavy scissors—this is both rapid and safe—deliver the uterus, and thoroughly wall off the abdominal and pelvic cavities with pads. This done, you pass a ligature around the ovarian vessel and round ligament, your assistant doing likewise on his side, tie these rapidly after all are passed, and hurriedly make a short longitudinal incision down to the membranes, then with your forefinger you tear the uterine wall instead of cutting, for the uterus tears easily. Tying the ovarian vessels, and round ligaments diminishes to a large degree hemorrhage that would occur if these vessels were tied after the incision into uterus was made, as is taught in the text-books. By this method hemorrhage will be almost nil, and only a few minutes of time consumed.

The only other point I wish to speak of is, that after the anterior and posterior peritoneal flaps are made, that about six interrupted catgut sutures be passed through the uterine walls just below the line to be amputated. These give you perfect control of the stumps, making it easy to pick up the large, bleeding branches, and quicker to approximate the raw surfaces, and thereby more readily control the oozing from them.

This is the method I have used in my cases, and found it much service, except in one case where the sutures were too short, the ends getting mixed up and slipping.

This paper is not intended to advance any new discoveries, but merely to urge the early recognition of the indications of Cæsarean section; the importance of absolute cleanliness in the previous vaginal examinations; and to declare that if these points are always observed, that the mortality in Cæsarean section in the hands of experienced operators will almost disappear, and the high mortality to the infant will in such cases be reduced to a very small per cent.

TREATMENT OF PUERPERAL ECLAMPSIA.

By A. A. Kent, M.D., Lenoir.

It is not my purpose to enter at length into the discussion of the several theories that are being advocated as to the etiology of eclampsia; and I will only briefly mention the most important pathological lesions, and then hasten on to the consideration of the *treatment* of this disease, which is always more interesting and of more vital consequence to the general practitioner. I would, however, urge upon every doctor the necessity of studying well this disease and its cause or causes. In order to treat it successfully it is necessary that the doctor shall have in his mind a clear-cut, well-defined understanding of the cause, if there be but one cause, or of the several causes, if there be more than one. I think there are several factors that are so often noted in its causation as to be worthy of our special consideration.

The primary and paramount cause is unquestionably autointoxication, due to insufficiency of elimination by the excretory organs. This toxæmia is popularly thought to be uræmic. But whether it is in reality fetal, or hepatic, or renal in its origin, or something else or all combined, I can not undertake to discuss in a brief paper. Williams in his textbook on obstetrics gives a most lucid review of the several contentions; and then concludes by saying: "The clinical history and anatomical findings afford presumptive evidence that the disease is due to the circulation of some poisonous substance in the blood, which gives rise to thrombosis in many of the smaller blood vessels, with consequential degenerative and necrotic changes in the various organs." "But at the same time," he says, "we are absolutely ignorant concerning the nature of the offending substance." After such a conclusion by such a distinguished authority, it would be presumptive for me to undertake to say what is the primal origin or the nature of

the toxæmia. But we at least know that there is a toxic substance circulating in the blood, which should have been, but which has not been eliminated by the excretory organs. While this toxæmia is the primary and paramount cause, there are other secondary or contributory causes that must not be overlooked.

The first of these that I would mention, and the one of probably the least import, is pain, labor pains, which like the lighted match sets off the explosion. Pain alone might never cause the convulsion; but pain added to some other cause, which without the pain would not have resulted in the convulsive seizure, does produce the explosion. Some women are especially sensitive to pain, and it is of consequence to consider, when we are in the presence of the convulsive seizure, what part, if any, pain is contributing in the case in hand.

Next may be mentioned, a specially sensitive condition of the nervous system, as though it was surcharged with some kind of explosive force. This condition, while due largely to toxæmia, is likewise a nerve cause per se, and may not be due more to other causes than they are due to it. It is due to some defective development of the nervous system, which predisposes some women to eclampsia. (The nervous condition into which they are thrown by the advent of pregnancy interferes with all the functions, especially of the excretory organs, to a degree that would not be the case with women of normal nervous organism, and to such an extent as to result in toxæmia and eclampsia).

The fourth and last to be mentioned is congestion of the nerve centres, due to high arterial tension and excess of blood in the system. It is seen in the full blooded, plethoric type of cases that are otherwise apparently healthy.

The pathological lesions are found to be renal, hepatic, cerebral and cardiac. The kidney of pregnancy is not a true nephritis, but a lesion of the renal epithelium that stops short of nephritis. If a true nephritis is found to exist, it is

thought to be preexistent and not a result of pregnancy. The hepatic lesions are more constant and more characteristic. In the liver are found areas of necrosis, which are due to thrombosis of the smaller hepatic blood vessels. These lesions are so very constant as to give rise to the belief that they are the characteristic lesions, and that the whole process is due to the impairment of the hepatic function. The lesions found in the brain are œdema, hyperæmia, thrombosis and apoplexy. The thrombi in the smaller cerebral vessels cause small areas of necrosis of the brain. Degenerative changes have been found in the heart muscle. This results in the enfeebled heart, which should never be lost sight of in the treatment of that type of cases.

Prophylactic treatment, if instituted at the proper time, and properly administered, would prevent almost every case of puerperal eclampsia. But unfortunately the doctor does not see the case, quite frequently, until called to attend the woman in labor. In every case where the doctor has the opportunity, he should educate his clientele upon the importance of the proper care of the pregnant woman, and especially advise of the importance of the characteristic symptoms, such as continued headache, disturbance of vision, œdema of the feet and face, scanty urine, etc. She and her husband should be admonished of the necessity of the doctor's being promptly advised upon the appearance of any of them. Where there is reason to suspect that trouble is brewing, the doctor should see the woman for himself. If any of the characteristic symptoms are found, eliminative treatment should at once be instituted. One of the very best remedies is cream of tartar, one teaspoonful dissolved in a glass of water, to be taken during every twenty-four hours. It acts upon both the kidneys and bowels, rapidly reducing the œdema and increasing the output of urea. Where there is very considerable œdema, great pallor and a weak, fast pulse, give tinct. digitalis, in ten drop doses half hour before meals, and Basham's mixture, in tablespoonful doses, half hour after meals, three

times a day. In place of the Basham's mixture, fifteen drops of tinct. chlor. iron, and 50 drops of spr. æth. nitro., may be given in a little sweetened water, three or four times a day. If the symptoms continue to grow worse, even under treatment, it becomes necessary, as a prophylactic measure, to induce abortion or premature labor.

When actually in the presence of the convulsive seizure, the attending physician must take into account the several causative factors that may enter into the case. Each and every case should be rationally treated, the treatment being determined upon, and directed against the cause or causes as they present themselves in the individual case. The attending physician who can do this lifts himself out of the ruts of routine practice and empiricism, and stands upon a firm level plain of intelligent understanding. With a clear conception in his mind of the cause, he is able to direct his efforts accurately toward the prompt and effectual removal of it. Sometimes only one causative factor is present and to be considered in the treatment of the case. In others two or more may be present in varying degrees of importance, and are to be combated at the same time.

If the case be one of ante-partum eclampsia, two objects must be accomplished. The convulsive seizures must be controlled, and the labor terminated as quickly as practicable. If pain be a very important factor, the continued use of chloroform, to partial anesthesia, till the os is properly dilated, and then labor terminated, by forceps delivery, if the head of the child is low down. If the head is high up, it is well to resort to podalic version, and hasten the termination of labor. Forceps delivery or version and delivery should only be done under complete anesthesia. Where the cervical canal has been obliterated or nearly so, the dilatation may be completed by use of the fingers as a dilator. Where the cervical canal has not yet been obliterated, and is very resistant, it is perhaps best for the general practitioner to endeavor to control the convulsions and fight for time in which the

canal will be obliterated by contractions of the uterus. It may be that the several causes are not in severe form, and that if the labor pains are relieved partly or entirely, the convulsive seizures will be controlled. In such cases a hypodermic of one-half grain of morphine may give relief. The continued use of chloroform is more apt to relieve the pain and carry the case along to delivery without convulsions.

Where there is excessive nervousness, the nerve sedatives, chloral and bromide of potash, given per rectum, are very effective remedies. I usually give thirty grains of chloral hydrate and thirty grains of bromide of potash in a pint of water, passed high up into the rectum. Morphine hypodermically is also valuable in these cases, as they bear pain badly.

In that class of cases, with high arterial tension and excessive blood supply, with congestion of the nerve centres, venesection is the most effectual remedy. Veratrum viride and other like arterial depressants may accomplish the same by slowing the heart's action, and lowering the arterial tension. But I always feel that I can accomplish the desired result much more certainly and promptly by withdrawing from the circulation a liberal quantity of blood, enough to slow the heart's action, relax the arterial tension, and relieve the congestion, thus almost surely putting a stop to the convulsions in the quickest way. The amount of blood to be withdrawn will depend much upon the size of the woman, as well as the severity of the case. Enough may be withdrawn to slow the pulse and lower the tension. I usually withdraw from twelve to twenty ounces. Chloral hydrate is also of very great aid in these cases.

By far the most important factor to be treated is the toxæmia floating in the blood. The blood may become so charged with toxic matter as to produce eclampsia weeks and even months before confinement. It is of paramount importance to relieve the system of as much of this poison as possible, and by the quickest and most effective means at

our command. I have sometimes used a hypodermic injection of one-tenth grain of pylocarpine hydrochlorate. It will promptly produce a copious perspiration, and in that way eliminate the toxines. But I regard it as a dangerous remedy. It weakens the heart's action, which is already too weak in some cases. It has given me more trouble by producing such a copious bronchorhea that the patient is in danger of suffocation during the period of coma between convulsions. The woman is in poor condition to throw off the excessive outpouring into the bronchial tubes, and I have had great trouble to keep one or two patients from suffocating from this cause. I have always regarded the hot pack as a remedy of too slow action to be relied upon, but have seen cases in consultation, where it was being used, and can say for it that it does produce free perspiration, with apparently no depression. In recent years I have relied mainly, in the management of these cases, upon copious blood-letting, immediately followed by large subcutaneous injections of normal salt solution. This treatment is rational, and at the same time eminently effectual. It may be used with like advantage in both ante-partum and post-partum cases. In drawing out a considerable quantity of blood, one pint to one and one-half pints, a considerable amount of the toxic material is drawn out, and the volume of blood in the system is reduced. Then by injecting two or three pints of normal salt solution into the blood in the system, the amount of poison material left in the system is diluted. The nerve centers are thus afforded a purer supply of blood. The salt solution stimulates the kidneys and skin into active work, thus continuing the process of elimination. I am confident that this treatment has saved several patients for me, where other treatment had failed. I have in several cases in the condition of profound coma, that seemed hopeless before, witnessed the gradual return of the patient to consciousness as the salt solution was being administered.

The fact that the heart muscle is weak in many of these cases should never be forgotten. In a number of cases, after venesection and the salt solution have been used, or any other treatment of a depressant character, it may become necessary to resort to stimulants and heart tonics. No treatment should ever be pushed to the point of endangering the patient's life from heart failure. In every case where delivery has not been accomplished, it is well to hasten the delivery by all practicable means, as the condition of pregnancy is the cause of causes.

A CASE OF OSTEOMALACIA.

By J. Steven Brown, Hendersonville.

Because of the rarity and gravity of the disease, I feel constrained to report briefly a case of osteomalacia, that quite recently came under my observation.

Dock has been able to collect reports of but ten cases in America. No doubt others have occurred without going on record. The family history is fairly good; four sisters and three brothers being alive and in good health, while one sister died at eleven of some spinal trouble. The parents were healthful.

Patient is a native of Hominy in Buncombe County, is now forty-five, and may weigh 100 pounds. Her normal weight was 107. The first point of special interest in her personal history is that normal menstruation was established at fourteen, and continued without noticeable irregularity till forty-four. Patient married before she reached fifteen, and is still living with the husband. Contrary to classical history, she never miscarried, and never even became pregnant. At twenty-four, a case of so-called erysipelas developed in her right leg, and continued for six months, leaving an ulcer, which remained for some months longer. A few years later she often suffered from supposed rheumatic pains in her hips. When about thirty-three she endured what she called "deep boring pains in the marrow of the bone of the left leg." After suffering this torture some six months, she says she felt her ankle pop as she was walking across the room. She was unable to use this limb for 18 months. Then for a year and a half she managed to hobble around—about this time her fingers and toes begun to be emaciated and drawn, and her right thigh began to ache and throb. Two or three years later the thigh bursted, and shivered as she expressed it. An exudation appeared on left leg about six months after the

ankle popped, and on the right leg about six months after the thigh shivered. Both legs are now covered with great fishy scales. Some five years ago the left arm broke or bursted above the elbow. Much pain is now felt in the right shoulder. Her pelvis is flat. She has no bedsores. The bowels move regularly. She craves much fruit. Her teeth are bad.

The cause of this serious disturbance in metabolism is usually referred to child-bearing. It might better be referred to some dyscrasia of the sexual organs independent of child-bearing. The disease occurs far more frequently in prolific mothers, but may occur in sterile women, and even in men. The remedy par excellence in the early stages is castration.

TERTIAN MALARIA, GOLGITYPE, FATAL WITH GASTRO INTESTINAL SYMPTOMS.

By James J. Phillips, M.D., Tarboro.

The digestive apparatus in infancy and childhood plays an important role in tertian infections. The anorexia and coated tongue, however; the occasional vomiting, transient constipation or diarrhœa so commonly observed, do not represent the disease picture which I desire to present in so far as they may be referred to an altered state of secretion or motility, or a relative functional inactivity of the organs. It is enough, in this regard, to say that the infantile intestine, by virtue of its marked irritability reacts so easily to disease, especially if such disease be of an infectious nature and run a febrile course, that such symptoms are but by effects, and hold a casual relation, by analogy, to most affections.

There develops, on the contrary, among children, an informal or aberrant type of tertian infection which finds primary expression in a more or less severe disturbance of the gastro enteric tract. Milder cases develop during apparent good health, or upon the basis of an unimportant disturbance of the digestion, acute anæmia, anorexia, vomiting, gaseous abdominal distention, frequent movements, greenish in character and undigested, which do not respond to ordinary treatment, and run a persistent course with periodic exacerbations. When the case is one of a general toxæmia, in which the nervous system shares, the more severely infected exhibit these symptoms intensified, and there supervenes acute diarrhœas, which present in their course the picture of severe infection. The movements are frequent, serious in character, indicating involvement of the small intestine, contain an admixture of mucus and undigested food, are scalding and associated with complete anorexia and vomiting. In onset and progress, in inroad upon strength,

vitality and well-being, the condition simulates closely the gastro intestinal catarrhs of bacterial origin. When in addition it is the case of invasion of the intestinal mucosa with the parasite, usually that of the rectum or the lower bowel, the course is still more stormy, and the movements change in character with increasing content of mucus and blood. The anorexia and vomiting become difficult of control, the loss of flesh and strength is rapid, the asthemia becomes pronounced, the anæmia cute while the diarrheal and dysenteric states combine to constitute at once the overshadowing symptoms which threaten inherently the life of the child. If, in its further progress, sloughing appears, we have at hand a condition which simulates typhoid in hemorrhage and ulceration.

I thus briefly sketch the types which the infection may assume, and it is essential to recall such disease pictures as referable directly to tertian infection to the exclusion of typhoid, dysentery proper, and the catarrhs of bacterial origin. Moreover, the condition, as I have observed it, is quite independent of chill and splenic tumor; in onset is not uniformly associated with fever, nor is it the rule that it follows in the wake of a tertian infection to constitute a complication; but, contrariwise may at once usher in the attack and clinically express the seizure. To indicate the idea, I begin the history of one or two cases which clearly expresses the onset.

A male infant, 20 months old, bottle fed, moderately rachitic, but otherwise in good health and preservation, has onset of illness with nausea, vomiting and diarrhœa; four to six loose, green and watery movements containing undigested food, and some mucus. The seizure is a sudden one, and continues for three days with considerable straining at stool, and an occasional fleck of bright blood. There is neither chill nor pyrexia. At 11 p. m. of the third day, fever is noted, 102.3 F., and a restless night followed, made so by vomiting, abdominal discomfort (gas), and five loose, green, watery movements. Examination is made the morning

of the fourth day—T, 101.2 F., P. 94, R. 22. The child is languid, eyes weak with feverish overcast, conjunctivæ subicteric, tongue coated, pale and flabby, tonsils free from exudate, fauces injected. An occasional cough with a few moist rales in each chest, liver not enlarged, spleen not felt, abdomen greatly distended with gas though everywhere soft, tympanitic and free from tenderness to pressure. Blood examination showed in fresh specimen, melaniferous leucocytes and free pigment; in stained specimen, tertian organisms full grown, pigmented and some young forms. (Vide chart casel.)

Close upon this follows the beginning history of another case which concerns a 19 months old infant, breast fed to the 11th month, bottle fed afterwards, a well-covered, well-developed child, healthy until its recent advent into a malarial district. Eight days prior to observation, she became ill with a train of symptoms digestive. There was refusal of food which persisted with occasional vomiting, the movements were frequent, usually watery and green, occasionally containing more or less mucus, and at times a small amount of blood bright, unclotted and evenly distributed in the mucus indicating its low origin. Moderate tenesmus. At the time of observation, she was having six to eight such movements daily, was completely nauseated and relaxed. She had had neither chill nor fever. P. E. T. 99, P. 92. Heart and lungs normal, intellect clear, no evidence of rickets, reflexes normal. Abdomen distended and tympanitic though everywhere soft and free from tenderness to pressure. Spleen is not to be felt. Striking is the ill appearance of the child, and the acute anæmia visible in countenance and mucous membranes. Slight sweating on forehead. On the next, the 9th day of illness, at 9 o'clock in the a. m. the temperature was 100.04 F.; at 3 p. m., 99.3 F.; normal at evening. Five movements during the day, in character as above. The 10th day was apyretic with intestinal symptoms continuing unabated. On

the 11th day at 9 a. m. the temperature rose to 102 F.; at noon it was 101.3 F. Blood examination showed tertian organisms, Golgi type, half grown and young forms. (Vide chart case 2.)

Here are noted conditions distinctly intestinal, and though associated with the tertian organism are without chill, without splenic tumor, and, for practical purposes, not revealing their true nature until the appearance of fever on the third day in the first instance, on the ninth and eleventh in the second instance, which said appearance prompted the blood examination. They bring clearly to view the feature of onset with gastroenteric symptoms, a continuation in the same with toxæmia, distinctly malarial in origin, yet unassociated with chill or splenic tumor, and with no grade of pyrexia inconsistent with a gastroenteric catarrh of bacterial origin, suggestive only in its periodicity.

If these symptoms are not heeded and no correct attempt is made to relieve through the management below suggested, they continue. A true diarrhea promptly develops, with a sharp rise in temperature, and the clinical picture becomes enlarged. The condition assumes the character of an intestinal catarrh with profuse and diarrhœal evacuations, the abdomen is uniformly distended, the fever assumes a remittent type, exhaustion becomes rapid and complete, and further, as an evident sign of severe intoxication, symptoms of a marked irritation of the nervous system develop, particularly in the young and highly strung child, which threaten life, and involve the whole organism in sympathy.

Another course of events is seen when there is a constant increase in the severity of the gastroenteric symptoms associated with hemorrhage and continued pyrexia. This condition may succeed the onset without intervening periods of remission and improvement and correspond to a severe grade of infection with involvement of the intestinal mucosa. It is indicated by constitutional symptoms, which soon become

manifest, by increase in the amount of mucus, by repeated appearance of blood in the stools and of tenesmus during defecation. The tertian organism is not alone in the peripheral circulation, but becomes locally implanted, and the boundary lines between these inflammations of the large intestine and true dysentery (Shiga, Kruse, Flexner) do not appear to be at all sharp. What we clinically observe may be set forth in the continuation history of case 2, presenting from the 11th day on a low grade of continued fever and the following history (Vide Chart, case 2, continued):

Between the dates of May 28, 1908, and June 5, 1908, there occurred 39 movements. Some of these were green with much mucus and very foul in odor, others similar in character streaked or mixed with blood; others, still, of almost pure blood, bright red and associated with mucus, though not intimately mixed. At times, when milk was the diet, curds appeared with regularity. There was abdominal distention, straining at stool with pain before the defecation and in the signoid region, over a circumscribed area, more or less acute sensitiveness to pressure. The appetite was fairly maintained. Splenic enlargement did not appear nor chill throughout the course of illness. Repeated examination of the blood showed tertian organisms and a favorable termination resulted from occasional doses of camphorated tinct. of opium and rectal injections of quinine.

In this case, the gastroenteric symptoms overshadowed the original infection. In type it departed from the normal in the absence of classical onset and in the termination in a dysenteric estate whose true nature and symptoms would have been misleading had not early recourse been had to the blood examination.

In prolonged cases, such as have received no adequate treatment, convalescence from the first onset may, without any manifest cause, be interrupted by one or more relapses. These periods of improvement and apparent cure alternating

with relapses may continue through many weeks and contribute a striking feature to the condition. Arising in an acute way, associated with more or less fever, after a period of bowel quiescence and succeeding a convalescence which may have been present for some days and given the promise of being complete, there in initiated *de novo* a condition which varies in no wise and character from the original seizure, which may be expected on the seventh or the tenth day from the last onset and with which, without exception, the young malarial organism becomes again associated.

It is a serious mistake, through misconception, to accord these children the customary measures for gastrointestinal conditions, for the fully developed symptom complex is apt to be fatal through toxæmia, diarrhœa, exhaustion and hemorrhage. Sometimes this is the case in spite of a clear conception of the condition and of every effort of intelligent therapy. More often is it true with those who have been treated by diet, intestinal disinfection, astringents, etc., upon the basis of a bacterial infection, and who, without improvement and steadily growing worse, have entered a state which a little reflection will show to be an expected, perfectly natural and logical consequence. The prognosis in such a course of events is very unfavorable.

In accordance with the hypothesis, a reaction must be brought about through antimalarial remedies and the condition met by these means. The cases mentioned have been so managed and cured upon this principle solely. Accessory to quinine of undoubted value are fractional doses of the mild chloride and a diet of broth. Colonic irrigations have proved helpful to me also in increasing the strength of the heart's action, in checking the loss of fluids from the system, in diluting the toxins in the body and favoring their excretion through renal stimulation.

Touching the method of administration, I have met a serious obstacle in the exhibition of quinine perorem. Vomit-

ing is consistent and irritative phenomena appear under this procedure, which deprive the stomach of all function. So that following the irrigations of normal salt solution, I throw up into the bowel for retention, quite as high as possible, a solution of quin. bisulph., based upon the age and relative weight of the child. This procedure is in case of necessity repeated every three to four hours, and a sufficient time must be allowed for this duty. It is the most prominent and by all odds the most successful form of treatment and, if properly executed, improvement will quickly follow. The fever falls and the general appearance improves. The movements become less frequent, approaching nearer and nearer the normal. It is surprising at times to note the short time requisite to bring about a tranquil condition of the intestines and shortly afterwards formed stools. The blood and mucus are removed, the secretion of urine increased, which is an especially favorable sign. The stomach resumes its function —in short, a reaction appears which, if maintained, removes the danger.

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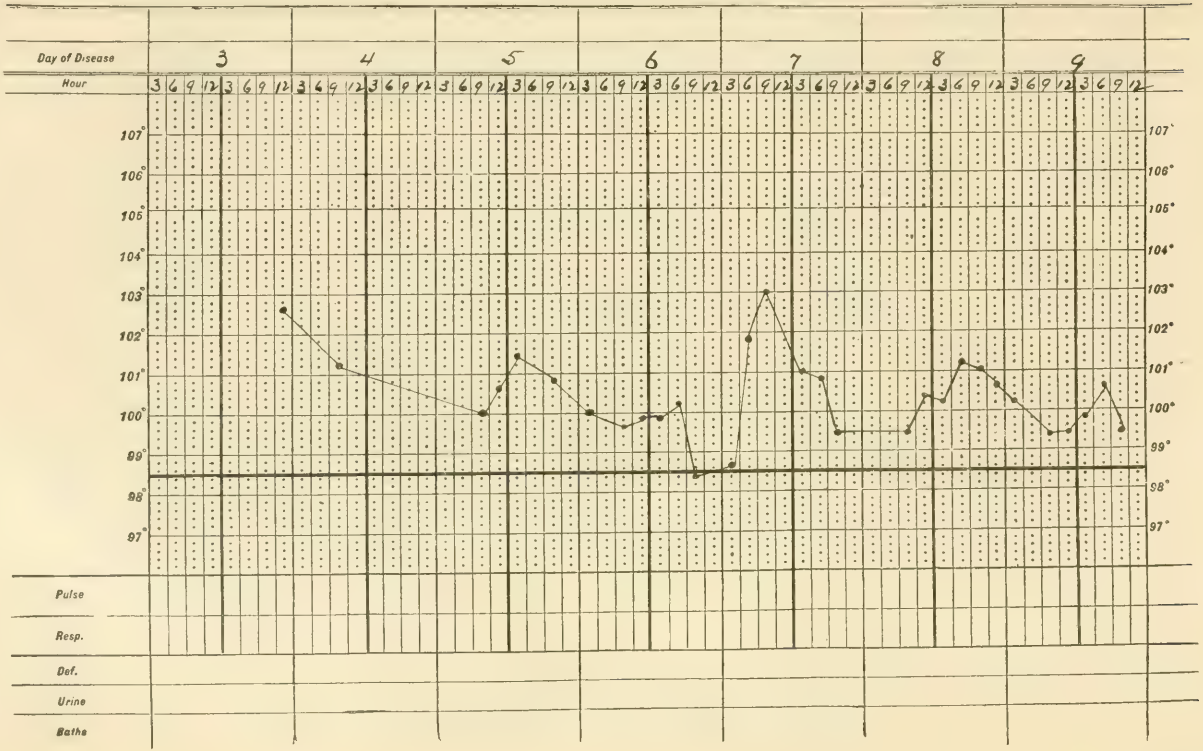

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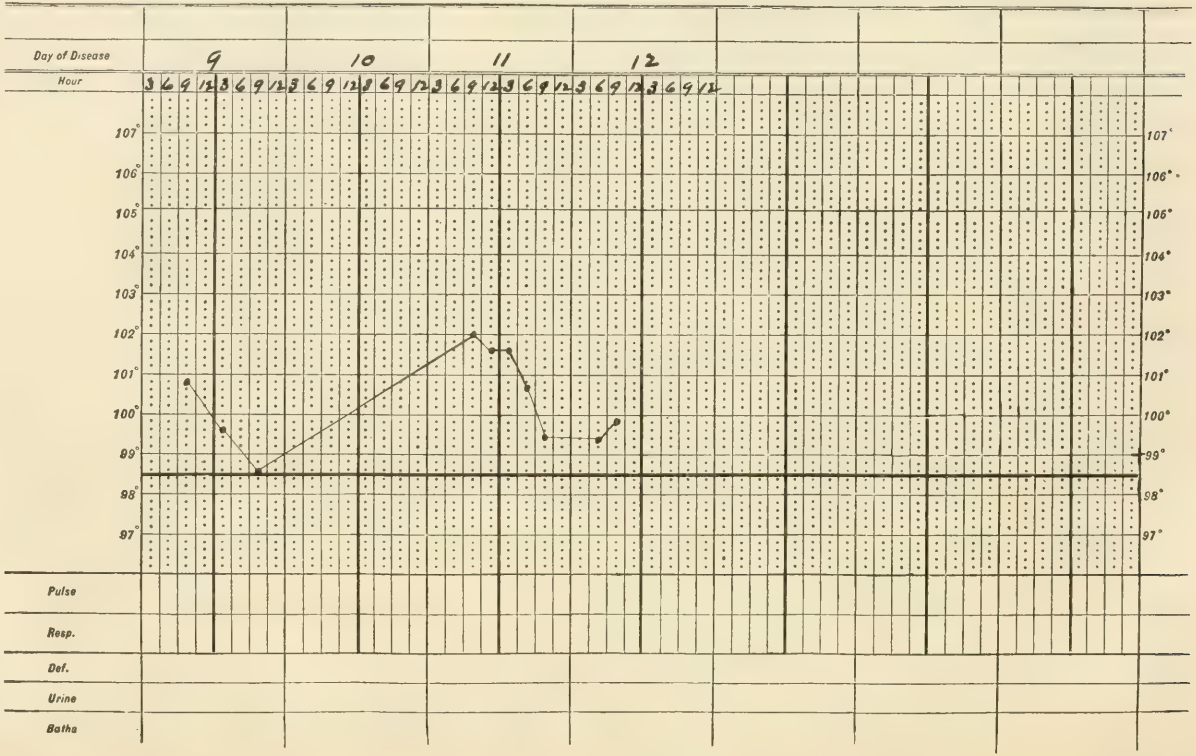

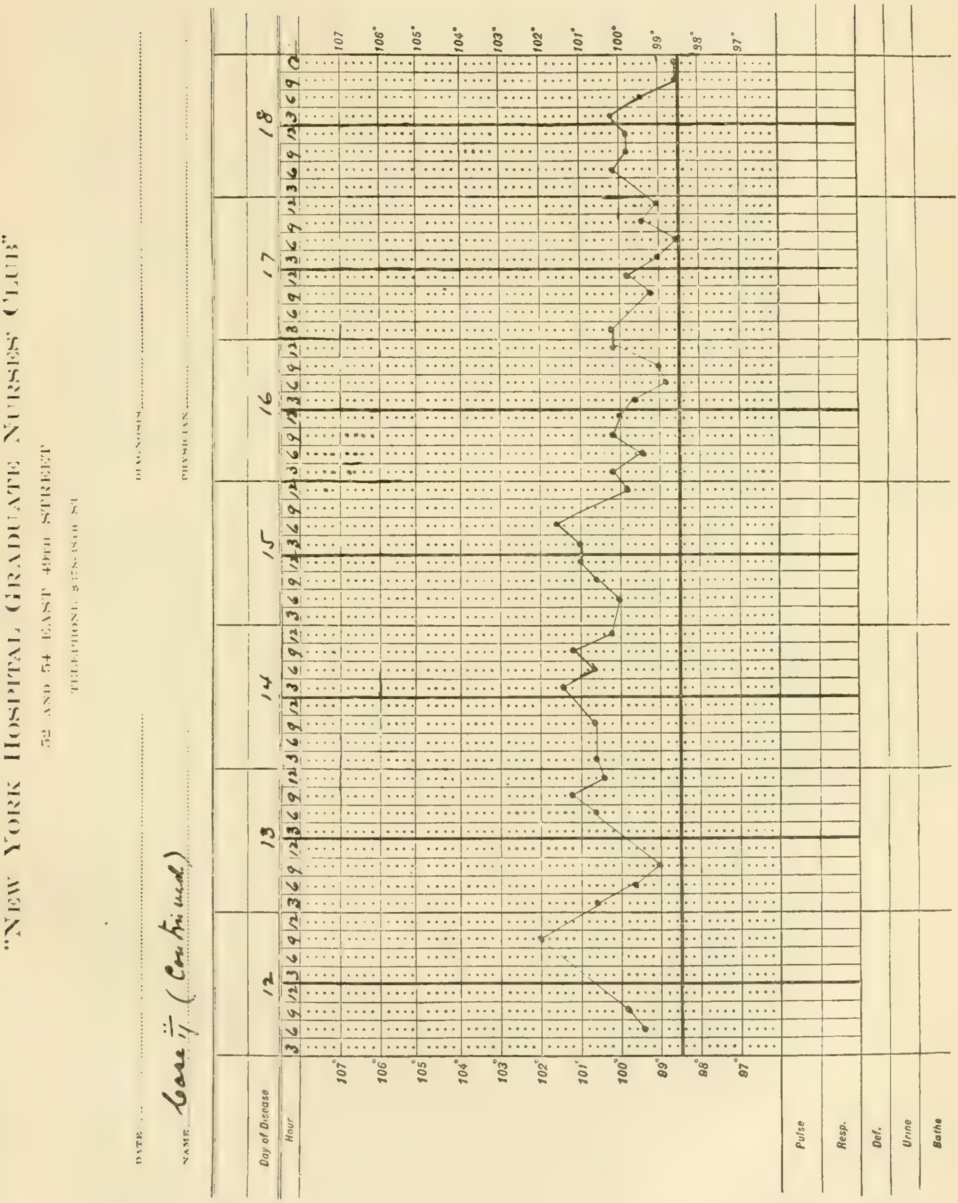
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A STUDY OF THE CURDS IN INFANT STOOLS.

By Charles Roberson, M.D., Greensboro.

Perhaps the first symptoms to manifest themselves when an infant's digestion becomes upset are vomiting and curds in the stools. The vomiting may be a symptom of almost any trouble, but the curds are an index to the nature of the disturbance. These curds may be of several different kinds according to what has caused the indigestion. They may be hard, putty-like masses, with foul odor; or small, flaky, tough curds of casein; or they may be composed of cereals and proteids with fat and fat derivatives and soaps entangled in their meshes.

In case it is the first kind of curds we have a typical and often observed picture before us. There will be a history of a happy, healthy child becoming cross and fretful, the night's rest broken and sleepless, the stools changed from normal yellow soft passages to characteristic hard putty-like constipated ones with a foul odor. The child looks white and pasty, is always hungry and soon begins to lose flesh. If the overfeeding with fat continues a condition of acute gastro-intestinal disturbance with rapid loss of flesh ensues, in spite of the quantity of food taken.

If the curds are the typical casein deposits we have another picture equally as typical, but with entirely different stools. They will be green and in some cases foul, filled with mucus and small white masses of casein. The clinical picture is one of extreme prostration with high fever, rapid pulse, straining at stool, vomiting and often a fatal termination.

The third picture with large hard masses of fats and casein and cereal deposits is the result of too great amounts of acid in the stomach which causes the milk mixture to be curded as soon as it enters the stomach, and being pressed on by the stomach walls is rendered so dense that the juices can not penetrate and disintegrate it. So it passes on through the in-

testines almost as it was formed in the stomach. As to just what is the causative factor in the formation of these different curds the pediatrists in this country and in Germany are widely at variance. The German school holds that they are practically all caused by too great fat ingestion and that the caloric method of regulating the food would correct the fault. The American school believes that the proteids are the disturbing elements and that the percentage method of feeding, if properly carried out, would correct it.

It is true the last word has not yet been said as to their cause or significance. These two opinions have arisen as a result of the two systems of feeding; the Germans teaching the caloric system and the Americans the percentage system. The discussions between the followers of the two schools have become quite heated, because of the unwillingness on each side to recognize the good points in the opposing side. The truth of the argument lies in the middle ground, as is the case in most contentions of this kind. The percentage system can not be wholly satisfactory because of the many failures attending its use and because we are not always dealing with perfectly healthy, normal infants.

The caloric system can not be right because it fails to take into account the percentage of the ingredients in the mixture.

The question resolves itself into the old adage that "each case is a law unto itself," and we have to "individualize the patients." The result of the study being done at present in an effort to settle the question must surely result in the adoption of the percentage method with the caloric system as a check to avoid the danger of too much or too little food being given. The holders of the percentage system contend that you can have the correct number of calories in a milk mixture without any fat at all by increasing the sugar to a dangerous percentage, which is perfectly correct.

By the caloric method we undertake to feed just the number of calories necessary for the child's perfect growth and development. No more and no less. By a series of careful

investigations it has been shown that the amount of energy necessary for the average child is 45 calories per pound of body weight for the first three months and for each succeeding three months about five calories less. While it is true that you can feed the correct number of calories in a milk mixture composed almost entirely of carbohydrates, that is not the question at issue. The idea is to feed the correct formula to suit the digestive capacity of the individual child, but not to feed too little or too much of it. The point at which the percentage method fails is where it allows too great daily quantity to be given. This may happen if the correct number of ounces is given at too short intervals or if too great quantity at proper intervals.

Within recent years a number of articles have been written by American authors pointing out the fact that a great many cases of intestinal intoxication are due to too great quantities of fat being given. Among these notably are Dr. Holt and Dr. Rotch, the two leading pediatrists in America. For example—a child of six months would be ordered a mixture to contain 4 per cent fats, 6 per cent sugar, and 2 per cent proteids. The interval to be three hours—each feeding to be eight ounces. That would make the total feeding 48 ounces, or if the child should be fed in the night, 56 ounces. The percentages are exactly correct, but the caloric value of the formula is very far in excess of the amount required. Continuing to feed such a formula in this way could only result in a case of acute intoxication such as I have described above.

But that would not be according to the method advocated by the German school. They do contend that the fats are causing more of the trouble than the proteids and that to bring the food up to its proper caloric value you must add carbohydrates to accomplish it. Thus proving my statement that the caloric system is not a method of feeding, but is a check on the percentage system or any other system.

This brings me to a discussion of the subject of this paper —A Study of the Curds in Infants Stools.

We have all seen children with pale, foul-smelling, hard stools, so hard in fact that large particles, as large as a hickory nut, or larger, would roll off the diaper like a marble. The child may be fat and weigh even more than an average child of its age, but the skin is pasty and white, it is subject to repeated attacks of diarrhea alternating with constipation. Such a condition is due to a too high fat percentage. This condition could not happen if the percentages of the three ingredients—fat, sugar and proteids—were checked by the caloric system.

On the other hand we have seen children being fed on some proprietary food rich in carbohydrates, or a milk mixture of correct fat percentages, but too great sugar, in which the stools were green and watery, the odor sour and the buttocks inflamed by the acrid character of the stool, the child thin and growing thinner, with high fever, or in other words, suffering with auto-intoxication from the decomposition of the carbohydrates. This condition could not arise if the caloric value of the food had been properly checked by the caloric method.

If it were possible to formulate any plan by which a successful method of feeding could be arrived at I would advocate first of all the percentage system as producing a food more nearly an imitation of mother's milk than any other But I would also advocate the caloric system as being the method by which this food could be fed to children in such a manner that the results would more nearly imitate those gotten from breast feeding than any other. It seems to me that the stools produced by the faults in each method, if used as the only guide, point out the place at which either system fails. A combination of the two would eliminate the danger of fat poison on the one hand and sugar intoxication on the other, and at the same time would regulate the amount of proteid according to the digestive capacity of the individual. Then, too, it would enable one to determine the exact amount of the food necessary to produce normal growth and development.

TUBERCULIN IN DIAGNOSIS, WITH ESPECIAL REFERENCE TO CHILDREN.

By Richard A. Urquhart, M.D., Baltimore, Md.
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So much has been written in the past few years on tuberculin in diagnosis, it is with some temerity I undertake to present the subject to you again.

I take it, however, that the very great importance of the early detection of the disease renders an apology unnecessary for the careful consideration of any method which may in the least aid us.

It is not my purpose to go into the history of tuberculin with which you are all familiar, nor to quote long statistical tables. I will present in as practical manner as I can the results of work done in the Johns Hopkins Hospital, largely by Dr. Hamman, in charge of the Phipps dispensary for the study of tuberculosis, and make such other references as may seem desirable, paying particular attention to the cutaneous test of Von Pirquet and the conjunctival test of Wolff-Eisner and Calmette. I may add that I have little or nothing new to tell you.

For many years Koch's old tuberculin, which is a concentrated filtrate of a six-weeks-old glycerine broth culture of the tubercle bacilli, has been used as an aid in the diagnosis of tuberculosis from a characteristic reaction following its injection into tuberculous individuals.

This reaction consists in a rise of temperature, definite inflammatory changes at the point of injection, certain constitutional symptoms, and focal changes. The constitutional symptoms are general pains in the body and limbs, headache, nausea, vomiting, all or any varying from mild discomfort to marked toxicty. The focal reaction consists in redness and swelling if a joint or gland is involved, and definite

changes in the breath sounds or increase of rales, if the lesion is in the lungs. In early and slight lesions the latter is often absent.

The exact nature of the reaction is unknown. Various theories have been evolved to explain it. Wasserman[1] thinks it consists in a union of tuberculin and antituberculin. He believes he has been able to demonstrate the presence of antituberculin in the tuberculous organism under special conditions. The product of the union of tuberculin and antituberculin, he believes, acts as a ferment on the tuberculous focus, the result of this digestion giving rise to the reactive phenomena. This theory, however, does not explain the phenomena satisfactorily. There is not sufficient evidence of any such chemical union and he leaves out of consideration the very important factor of hypersensitiveness, of which I will speak in a moment. Wolff-Eisner[2] considers that an endotoxin is liberated from the bacilli through the agency of a lysin.

He believes the reaction depends upon three factors: (1) that tuberculin contains infinitely small, ultra-microscopic portions of the bodies of tubercle bacilli; (2) the presence in the body of a bacteriolysin; (3) the presence of hypersensitiveness in the individual. He conceives that the lysin acting on the albuminous portion of the bodies of the bacilli liberates an endotoxin which in a hypersensitive individual produces the reaction. The intensity of the reaction depends upon the degree of hypersensitiveness. This theory seems more nearly to meet objections, and brings us to a moment's consideration of the nature of this hypersensitiveness.

This phenomenon is usually spoken of as anaphylaxis, a term in common use since its introduction by Richet[3] in 1904, and is used, in a sense, as the absence of protection. As Vaughn has justly observed, however, it is misleading,

[1] Wasserman & Bruck, D. M. Woch., 1906.
[2] Wolff-Eisner, A. Cent. f. Bakt., 1904.
[3] Richet. Arch. di Fisiol, 1904, II.

since the phenomenon is really an effort at protection, and the symptoms the result of a sort of over-protection. Richet observed that dogs injected with a small dose of a poison derived from a sea-anemone called actinia, were not harmed by the first dose, but were made so sensitive that a second dose a week or more later brought out poisonous or fatal symptoms. Since then very much consideration has been given the subject by Rosenau[4] and Anderson and Vaughan in this country, and by Otto[5] in Germany.

Vaughan has been able to chemically decompose proteids, including bacterial proteids, into a poisonous and non-poisonous fraction,—the one fraction highly poisonous and producing symptoms very similar to a tuberculin reaction, the second non-toxic; the first does not cause hypersensitiveness, however, while the second will.

He concludes that when an albumin is injected into the body, through the agency of a ferment or, as Wolff-Eisner calls it, a lysin, the proteid molecule is broken up and the poisonous fraction liberated.

At first the separating process is too slow to cause poisonous symptoms, but according to the law of immunity, this activity brings about a great increase in the lysin, and on a second application of the proteid the poison is liberated with great rapidity and causes the toxic condition. These conclusions are very strong in support of Wolff-Eisner's conception of the nature of the phenomenon.

It is beyond the scope of this paper, and I may say my ability, to follow the various phases of the condition and the theories of its production. It would lead us into most interesting and promising fields, but where nothing is as yet definitely settled.

It is sufficient to say that the injection of almost any proteid, egg albumin, serum from another animal, or vegetable

[4] Rosenau & Anderson, U. S. Hygienic Laboratory Bulletin, No. 29, 1906.

[5] Otto, R. v. Lenthold Gedenkcrift, Vol. I, 1905.

proteids, into an animal causes no disturbance to the first injection, but so sensitizes the animal to that particular proteid that a second injection will produce poisonous symptoms or very probably death. An incubation period of seven to fifteen days is necessary for its development, and it is absolutely specific in its nature; the second injection must be the same proteid or belong to the same group as the first.

Gay and Southard[6] made careful histopathological studies of the condition. They found no changes during the anaphylactic state, but very marked ones during the toxic, notably numerous hemorrhages in the stomach, bowels, lungs and heart, and of particular interest, what appeared to be an acute fatty degeneration in the capillaries and endothelium, heart, voluntary muscles, peripheral nerves, etc. Physiologically the heat, sympathetic and respiratory centers seem especially affected.

It is quite possible this condition may account for some of the sudden deaths following the use of diphtheria antitoxin, as well as the frequently observed urticarias and joint affections.

We believe tuberculin sensitiveness is analogous to that of other proteids, except that it appears that living tubercle bacilli must be present before hypersensitiveness develops. The sensitizing occurs, apparently, from the gradual liberation of poison in tubercle formation. Most of the evidence points to the impossibility of sensitizing a healthy individual with injections of tuberculin and in this it differs from injections of egg albumin and serum. Whether this is due to its transient action, or the absence of some substance derived from the bodies of the bacilli, or that the bacilli are changed in culture, is not known. When once present it is readily stimulated by tuberculin injections.

The specificity of the reaction is attested not only by many thousands of clinical observations, but as well by thousands of injections in veterinary practice where the results have been

[6] Journal Med. Research, Vol. XVI, 1907.

verified by autopsy findings and show only two per cent error and we believe this error is due not to the absence of the disease, but the difficulty in locating a very small focus. Of great interest, too, is a comparison of Beck's[7] statistics of 2500 tests in other diseases, giving an average of sixty per cent reactions and Burkhardt's[8] record of 1200 autopsies in adults where a tuberculous lesion was found in practically all, and definite signs of activity in sixty per cent. The correspondence is worthy of note.

It is true that reactions in the tuberculous have been reported following the injection of substances other than tuberculin, notably other albumoses, but with nothing like such intensity nor from such small doses. Further, while competent observers have reported definite reactions from tuberculin in other diseases, such as typhoid, carcinoma, acute peritonitis, etc., they have been relatively so few as not to detract from its value, and we believe in these instances tuberculosis was or had been present. It is, therefore, generally conceded, and we can definitely conclude, that the phenomenon owes its origin to some substance in the individual dependent upon the previous presence of the tubercle bacillus.

Under certain conditions, however, there is no reaction. This occurs under several general conditions. First, naturally where there is no tuberculous focus. Secondly, where it has existed or may exist, but is so old or so inactive that protective substances are not elaborated. In these individuals the continuous stimulation of several successive injections may redevelop hypersensitiveness, probably explaining the delayed reaction often encountered.

Again it is absent in the exhaustion of some very old cases and some very rapidly progressive early ones. This is probably to be explained by the organism being practically overpowered by the outpour of poison or, as Baldwin expresses it, an exhaustion of the reactive machinery.

[7] Deutsch. Med. Vochenschr. 1899, Nos. 5-9.

[8] Ztschr. f. Hyg., VIII—Heft. 1.

Lastly, it is absent sometimes in the presence of other debilitating diseases, as Von Pirquet[9] has pointed out in measles—possibly throwing some light on the tendency to tuberculosis following this disease. An interesting case has been recently reported by Freund in Monatsschrift fur Kinderheilkund: Vol. 7, 1909. A child with idiosyncracy to cows' milk gave a highly positive reaction to tuberculin when ill from cows' milk. There was no reaction before, and it quickly disappeared after cows' milk was no longer given. We can not at present explain such a reaction.

As I have stated, it is my purpose in this paper to speak particularly of the more recent methods of applying the tuberculin tests, namely Von Pirquet's cutaneous and Wolff-Eisner's and Calmette's conjunctival methods. With Moro's percutaneous reaction we have had but little experience. It has no advantage over the cutaneous, and in children is more difficult to apply.

Von Pirquet[10] was led to his discovery by observing that after a first inoculation with cowpox vaccine, there occurred no inflammatory change for three or four days, but in an individual previously successfully vaccinated, a small reaction occurs within twenty-four hours and rapidly disappears—the virus not developing on account of the prompt reactive inflammation. This protective principle he called Allergie, which signifies an altered reactive power.

His technic is as follows: After washing the forearm with ether, two drops of undiluted old tuberculin are placed about four inches apart. With a small instrument somewhat the shape and size of a pencil, and having a chisel-shaped end, a small circular scarification is made midway between the drops for control; a similar scarification is then made through each of the drops. A few fibers of cotton are placed on these to prevent flowing. These are removed after about five min-

[9] Von Pirquet W. K. Woch., 1908.

[10] Berl. Klin. Wchnschr., 1907, Nos. 22-23.

utes, no dressing being necessary. Observations after 12, 24 and 48 hours are quite sufficient for all practical purposes.

We have been accustomed to modify Von Pirquet's method to a slight extent. Instead of his instrument, we have found a simple scalpel very satisfactory. We think it is less painful and is followed by more uniform results. Some practice is required to exert just the right amount of pressure for abrasion with Von Pirquet's instrument.

Instead of undiluted tuberculin, we have used one, five and twenty per cent solutions. We hoped with these varying solutions to find one which would more closely approximate the clinical findings.

After this vaccination there begins to appear within five to twenty hours a definite local change around the scar—a definite pink color in the center surrounded by a less decided pink areola. The center is usually infiltrated and in severe reactions there may be vesicles. The latter, however, in our experience are rare.

Von Pirquet considers a reaction to be positive must measure one-sixth inch in diameter. It reaches its maximum as a rule in 24 to 48 hours and lasts four to five days.

Hamman[11] has classified his results in a large number of adults as follows: (1) Negative, when it does not differ from control; (2) very slight reaction, when there is little redness and little or no infiltration, practically may be considered negative; (3) reaction, with considerable redness and infiltration; (4) reaction, with wide area of redness and marked infiltration; (5) reaction, with unusual swelling and marked infiltration.

Wolff-Eisner[12] recognizes three types, (1) an active reaction, which, beginning in four to six hours, reaches its maximum within twenty to twenty-four hours, is stationary for a

[11] The cutaneous and conjunctival tests in diagnosis of Pulmon. Tuberc. Archives of Int. Med., 1909.

[12] Die ophtholms—und kutan-Diagnose der Tuberkulose. Beits. z. kl. d. Tuberk., 1908: Bd. IX.

day, and disappears by the fourth day. (2) A very early reaction, beginning within six hours, reaches its maximum in ten or twelve hours, and has disappeared not later than the second day. This type is supposed by him to occur in the definitely tuberculous who are doing badly. (3) A reaction, beginning about the usual time, reaches its maximum during the second day, sometimes later, remains stationary for a week or more. This he considers characteristic of an inactive lesion.

The earliest beginning reaction is five hours, the latest perhaps 48, the earliest maximum around 20, the latest about 120 hours, the average something over 30. Its duration is from 48 hours to a week.

Von Pirquet speaks of a primary reaction which is nearly always present in children with clinical evidence of tuberculosis, of a torpid reaction when it occurs after some days, and of a secondary reaction when a second test is necessary. He believes the two latter forms are significant of an old and slight infection which is healing.

He does not, however, believe that a high reactivity means necessarily a very active and progressive tuberculous process, but that the organism has recently been in contact with the bacillus or one of its products.

Shortly after Von Pirquet announced his skin reaction, Wolff-Eisner first, and then Calmette, apparently independently, announced that a definite reaction could be produced by the instillation of tuberculin in the conjunctivæ of tuberculous individuals.

Wolff-Eisner at first used various strengths of old tuberculin, but lately uses a one per cent solution. Calmette uses a purified tuberculin estimated at ten times the strength of old tuberculin—a fact deserving careful attention in comparing results.

The method pursued by us is about as follows: After carefully examining the eyes to be sure they are healthy and that the conjunctivæ are alike in appearance, one drop of a one

per cent solution of old tuberculin is instilled into the inner angle of the left conjunctival sac and the lids manipulated for dissemination. Being mostly out-patients, the eyes are examined after twenty to twenty-four hours, and if negative, one drop of a not higher than five per cent solution is applied to the right eye in the same manner, and if after twenty-four hours there is still no reaction, we have occasionally applied again one drop of a one per cent solution to the left eye. Latterly we have given up this procedure. I will have a word to say relative to these delayed actions later on.

The reaction following such instillations varies from a mild inflammatory redness, through a more intense redness with lachrymation to a fibrinous or fibropurulent inflammation. It varies in different individuals in accordance with the degree of hypersensitiveness and the strength of the solution used.

In estimating the worth of these reactions as aids in diagnosis, it may be well to compare them in general, in adults as well as in children, and then speak more particularly of their application in early life.

Hamman has divided his cases into six general classes, (1) clinically non-tuberculous; (2) doubtful, including those with symptoms or signs that might possibly be referred to tuberculosis, but where repeated examinations failed to confirm such suspicions; (3) probable, which he believes would in most instances be classed as incipient, but where the symptoms and signs were not absolutely definite; (4) incipient, where there could be scarcely a doubt of the nature of the disease; (5) moderately advanced; and (6) far advanced cases.

The results of conjunctival instillations of one per cent solutions in these classes resulted as follows: 3 per cent of clinically not tuberculous reacted, 13 per cent of doubtful, 31 per cent of probable, 48 per cent incipient, 71 per cent moderately advanced, 69 per cent of the far advanced. For corresponding classes with 5 per cent solutions his figures are,

6 per cent, 25 per cent, 61 per cent, 52 per cent, 87 per cent, and 86 per cent. With the cutaneous test he finds in moderately advanced 60 per cent react to a 1 per cent, 93 per cent to a 5 per cent, and 97 per cent to a 20 per cent solution, while in the clinically non-tuberculous 73 per cent react to 20 per cent solutions, and in the doubtful 82 per cent. He finds, further, that of those negative to the eye test that 32 per cent react to a 1 per cent vaccination, 65 per cent to a 5 per cent, and conversely 40 per cent of those positive in a mild degree in the conjunctiva are negative to a 1 per cent vaccination, and 16 per cent to a 5 per cent.

Morelli in one hundred cases of pulmonary tuberculosis reports 98 per cent positive to vaccinations, 86 per cent to conjunctival instillation, and in 22 cases not pulmonary 72 per cent to vaccination, 63 per cent in the conjunctivæ.

Wolff-Eisner with weak solutions finds in all cases one-half react cutaneously, one-sixth conjunctivally.

Others might be quoted, but these will suffice to establish that the skin reaction is more sensitive than the eye, and more closely approximates the results of subcutaneous injections.

This greater sensitiveness of the skin has been attributed to several causes: Wolff-Eisner undertakes to explain it by a difference in absorption power: this being slower from the skin, the tuberculin is for a longer time in contact with the cells there, this prolonged stimulation, enabling them to take up again the power to react which they had lost in the quiescence of the focus.

Hamman suggests that certain cells may be more highly sensitized than others, for instance, the skin more so than the conjunctiva, but thinks the trauma in the cutaneous test may have to be taken into consideration.

Others, as Hamill,[13] Carpenter and Cope, believe that given solutions of the same standard strengths, the results in children at least will run parallel. It would seem, therefore,

[13] Hamill, Carpenter & Cope, Archiv. Int. Med., 1909.

while each reaction is of definite value, it is necessary to use both to get the most information. Hamman has concluded that in general work 20 per cent solutions in cutaneous tests give results more closely approximating the clinical findings in the definitely tuberculous, but in the clinically non-tuberculous and doubtful cases the results are too high for practical conclusions; exactly the converse is true of a 1 per cent solution, while a 5 per cent seems too high for the non-tuberculous, clinically, too low for the definitely tuberculous. With the conjunctival reaction with 1 per cent solutions, the results accord very closely with the clinically non-tuberculous, but only about 70 per cent of the definitely tuberculous react.

In estimating the comparative value of these tests, it is well to consider the absolute harmlessness of the cutaneous test, while with eye reactions, though those of the broadest experience have reported comparatively no bad results—there having been none in practically 3,000 instillations at the Hopkins—other very careful workers have reported very serious and permanent injuries. It is also worthy of note that ophthalmologists generally do not approve of it.

Compared with the subcutaneous injection of tuberculin, as I have said, the cutaneous test more closely approximates it in positive results. It must be remembered here too that while most observers do not believe that when carefully used more serious results than the accompanying discomfort follows, others, notably Professor Sahli, believes there may be danger, and never causes a reaction for diagnostic purposes with subcutaneous injections.

It may be said, finally, that while the cutaneous and subcutaneous test will disclose latent and healed foci, conjunctival reaction to 1 per cent solutions practically means an active lesion.

Now a word in regard to repeated instillations in the conjunctiva. It has been frequently shown that while a first instillation produces no reaction, when a week or more later an even weaker solution is applied, an active reaction may be

liberated. We suppose that at the time of the first application, owing to the latent condition of the focus, there is so little lysin present that the proteid is acted on very slowly and the endotoxins liberated too slowly to produce any reaction; but under this stimulation the lysin increases rapidly and when the tuberculin is again applied acts with such energy the poison is liberated freely and the active reaction results.

Three or four applications have been necessary in some cases to produce reaction, while in others any number will fail. We believe from this that if the reaction can be brought out at all, that it does not result from sensitizing by the instillation or injection, but results from a hidden focus.

In work among children, I would say the Von Pirquet[14] reaction is by all means best, if for no other reason than its simplicity. His tables practically represent the present position relative to the reaction in childhood—in one table he records the results of his test in 1,407 cases, which came to Escherich's clinic in Vienna for illness of one sort or another, dividing them according to age from one year to fourteen. The results are as follows: During the first year 5 per cent positive; second year, 20 per cent; third year, 33 per cent; fourth year, 38 per cent; fifth, 36 per cent; sixth, 55 per cent; seventh, 53 per cent; eighth, 60 per cent; ninth, 64 per cent; tenth, 69 per cent; twelfth, 78 per cent; fourteen, 93 per cent. He states that these figures are a little high because quite a number of children are brought in for definite and known tuberculosis.

In another table he records the cutaneous test in 1,134 Viennese children, among whom all children suspected of tuberculosis, including those with bronchitis or the anæmic, are excluded. The result was that during the first two years none reacted; during the third year 14 per cent reacted either primarily or secondarily; the fourth year 14 per cent; fifth, 16 per cent; sixth, 34 per cent; seventh, 35 per cent;

[14] Von Pirquet. Journ. Am. Ass., Feb., 1909.

eighth, 41 per cent; ninth, 46 per cent; tenth, 56 per cent; twelfth, 69 per cent; and fourteenth, 91 per cent.

From a comparison of these tables we can conclude, that during the first year tuberculous infection without definite clinical signs is practically unknown, during the second year the reaction almost certainly means active tuberculosis. Up to the fifth year the information is relatively positive of an active focus, but by the tenth, and we might say by the sixth or seventh, the reaction is to be considered in the same light as in adults.

Such work as we have been able to do in our out-patient department entirely confirms these observations.

In early childhood, therefore, these tests are of great assistance to us in establishing a diagnosis of many indefinite conditions, where, though our suspicions are aroused and some clinical signs are present, we can not be sure we are dealing with tuberculosis. A positive reaction tends most strongly to confirm our suspicions—a negative result dispels them and we look elsewhere for the trouble.

It is interesting to mention Detre's[15] attempt to point out the character of the infection by his differential tests—meaning by this cutaneous tests in corresponding locations, simultaneously, with human old tuberculin and with human and bovine bouillon filtrate. He believes that infection with the human bacillus will respond more vigorously to cutaneous test with the human inoculation, the bovine infection to bovine inoculation; and further, that an active lesion responds more vigorously to the filtrate than to old tuberculin. His sole reason for such conclusion was the actual measurement in millimeters of the diameter of the areola, calculating to such refinements as one or several millimeters.

According to Von Pirquet, the size of the papule may vary up to 50 per cent from unavoidable differences in methods and Schutz[16] and Videke, after exhaustive study, with vary-

[15] Detre in Wiener Kl. Woch., 1908, No. 6.

[16] Wiener Kl. Woch., 1908, No. 37.

ing strengths and on various parts of the body, found large variation in the size of the reaction without any definable cause. They further called attention to the fact that Detre overlooked entirely the varying time at which a reaction may reach its maximum. We, as do most other observers, believe, therefore, that there is but little support for Detre's contention.

In conclusion, we can say that reaction to tuberculin subcutaneously, by the cutaneous test, or conjunctival instillation means the previous presence of tubercle bacilli and practically tubercle formation.

This reaction gives in no sense absolute, but only relative information, and is not comparable to finding tubercle bacilli in sputum, and can not replace careful physical examination. The conjunctival test perhaps is most useful in adults and older children—approximating more closely the clinical findings where assistance is most needed in doubtful cases—in young children the cutaneous test gives information of great value, is harmless and easy to apply, and should be employed.

Stronger solutions than 1 per cent old tuberculin should never be used for a first conjunctival instillation, nor stronger than 5 per cent later. No reaction in doubtful cases to repeated cutaneous or conjunctival tests indicates the absence of tuberculosis. Differentiation of the type of infection by differences in the cutaneous papules is not possible. Attempts at prognosis from the character of the reaction seem hardly warranted. Very slight or very slow reactions in the definitely tuberculous are usually associated with progressive lesions, but not always. It has been stated that it is more intense in the first and second stages and that high reactivity means good resistance. There are, however, so many exceptions, that so general a statement can hardly be accepted, and we must await further knowledge to determine any relationship of the intensity of the reaction, or the time of its occurrence, to the stage of the disease or its activity.

THE INFLUENCE OF PATHOLOGY ON MATERIA MEDICA AND THERAPEUTICS.

By Watson S. Rankin, Wake Forest.

Individual man in his physical development, rehearses structurally his entire ancestry. Passing from a single cell to the highly differentiated multicellular being, he imitates thereby for a brief period in his existence the life of all preceding or more primitive animal species. From the simple amœba, through the metazoan tribe, including the higher apes, he arrives at last at the pedestal of creation where he stands—the image of his Maker.

In this transition from simplicity to complexity, from the lowly to the highly organized, there is in all mankind, in some more than others, a retention of structure which had important functions in a more primitive being, but which in man are useless and exist solely as vestiges.

Somewhat analogous to this physical evolution is mental evolution, of which there is no better example than the evolution of the medical mind.

It is because pathology has been intimately connected with this evolution of the medical mind, and through this connection profoundly influenced materia medica and therapeutics, that a brief consideration of the various phases of thought through which the medical mind has developed is necessary in a paper entitled, "The Influence of Pathology on Materia Medica and Therapeutics."

Medical history makes it clear that medical thought has passed through three separate phases, each of which has been governed by different authority.

Medicine began as fetish medicine. This practice sought the cure of disease through the mystical influence of some material object believed to confer supernatural power on its possessor.

After fetish medicine came temple medicine. In this practice disease was believed to be due to the various dieties, and its cure was attempted by appeasing these angry gods with prayers and incantations.

Please note that both fetish medicine and temple medicine were faith cures; the first, by faith in an object of the senses; the second, by faith in an object of the imagination.

These two forms of medicine, lasting until 500 B. C., characterize an era in which faith was the high authority.

In 460 B. C., Hippocrates was born. By careful observation he saw and established the fact that disease and its cure were the results of natural laws, and by thus establishing a new etiology revolutionized treatment.

Later, in 131 A. D., Galen was born. To observation, the method of Hippocrates, he added experiment, the second of the two methods of natural study.

The work of these two men tended to establish, and should have established, medicine as a natural science, but so poorly prepared by preliminary training were their hearers, that, as so often happens in cases like this, the personality of these great teachers more impressed their students than did the substance of their teaching. Instead of establishing nature as the authority in medicine, they, unintentionally and unavoidably, made themselves authority, thus establishing the era in which dogma was the supreme authority. This lasted practically 2000 years, and during all this time, these two men, Hippocrates and Galen were absolute authority, their opinions gospel. Nature, the true authority, was forgot.

In 1514 Andreas Vesalius was born. At 22 years of age he was Professor of Anatomy in the University of Padua, then the greatest university in the world. He was a worthy contemporary of Martin Luther, for while Luther was replacing the authority of man with the authority of God in the church, Vesalius was replacing the authority of man with the authority of nature in medicine. In the face of almost

fanatical opposition he dared to change his text-book on anatomy, substituting Galen with the cadaver, appealing from man to nature, from dogma to science.

The study of structures, their shape, size, and relation is impossible without the idea of use or function constantly suggesting itself; so from anatomy as a natural study it was not far to physiology as a natural study, and in 1628 we have, as a result of such a study Harvey's brilliant discovery, the circulation.

Again, as health fades imperceptibly into disease, so normal structure and function, anatomy and physiology, merge imperceptibly into abnormal structure and function or pathology. Thus we see the direction of the flow of thought as it goes but a short way from Versalius to Harvey, and but a short way further to John Baptiste Morgagni, born 1682, and publishing his "De Sedibus et Causis Morborum" in 1761.

O John Baptiste Morgagni! How well named! As the other of that name announced a great teacher of true philosophy, so you announced the true teacher, nature, in medicine.

These three men, Versalius, Harvey and Morgagni have each contributed one of three large pillars hewn from the bosom of nature, on which the edifice of scientific medicine has been builded as "the house upon a rock."

To recapitulate, we see that the medical mind in its evolution has passed through three separate eras—the era of faith, the era of dogma, and finally the era of science.

As in the physical evolution of the individual there is a synoptical rehearsal of all the more primitive species through which the living plasma has been handed down through the ages to man, so in the evolution of the mind of each doctor there is a rehearsal of those three phases of thought from which the science of medicine has been evolved.

All of us in order to become master workman in the temple

of Esculapius, must take in order the three degrees, of faith, dogma and science.

The proof of this last fact is the personal experience of every full-grown doctor. Because of your *faith* in the worthiness of medicine as a calling, you began. Once in the school, you were so fully impressed with the personality of your teachers that you accepted what they said unquestioningly. *They,* their opinions, became to you *authority.* Later as your mind developed, becoming familiar with certain natural laws which served to explain you clinical observations, you became independent of your teachers, having become able to appreciate disease as a natural science.

As in physical evolution, so in this particular type of mental evolution, there are the two dangers of vestigal retention and premature cessation of development.

The first and minor danger is vestigal retention which takes the form of fetish medicine. Fetish medicine with the one possible exception of the mad-stone is so manifestly out of place that it is excluded from the profession and is found now only in the hands of the conjurer.

The second and major danger is the premature cessation of development. In the development of medical science as above stated, it required two milleniums for dogma to grow to science. This same danger that threatened and crippled the development of medical science, threatens every offspring of that science.

Too many men are graduated with the M.D. degree before the natural laws governing disease are sufficiently made a part of their mental mechanism, and so being unable to think independently, they go out dependent on rules laid down by others, to whom they become mental slaves. They are dogmatists, not scientists, and their minds have not reached their nature evolutionary possibility.

The tendency of these men is to treat diseases according to fixed rules, to treat them as a class, when we all know that each individual ailment is a law unto itself.

A far graver and commoner defect of these men is their therapeutics—they are inevitably polypharmacists. I say inevitably because the dogmatist in medicine is not governed by those natural laws of disease that govern the scientist, but by the opinion of those men whom he may select as his authorities. And may I ask how these men are to select authorities when the test of authority is one they can not apply? For how could one, not knowing the natural laws governing disease, recognize the possessor of such knowledge? As a result of his inability to discriminate between the true and false prophets of science he soon becomes burdened with a superabundance of suggestions in the form of remedies, and thus inevitably lands in the wilderness of polypharmacy.

It is generally conceded that the average text-book on materia medica contains a great many useless drugs.

It is on the authority of science, expressed through the departments of pathology and pharmacology, that we who profess to follow her in deed as in word declare: That olive oil is absolutely useless in cholelithiasis; that valerian, save for the effect of its odor is inert in hysteria; that tannic acid and gallic acid in internal hemorrhage are of use only as pacifiers of the minds of attendant and attended; that alchohol and ether, once our trusty standbys for quick and sure stimulation when hypodermically given, have now been proven useless so far as their cardiac action is concerned when given in this way; that no evidence exists to show the value of colchicum in gout; that the aniline dyes have no scientific foundation; that suprarenalin is only a heart and vaso-motor stimulant when given intravenously, and absolutely inert when subcutaneously injected; that potassium iodide, true remedy for leuetic disease, has no scientific proof of value in the removal of exudates, hemorrhages, or tissue proliferation; that hypophosphates have no effect in neurasthenic conditions; that the use of lithium salts for the uric acid diathesis (whatever be the meaning of that diagnostic

placebo) and calcium salts for internal hemorrhage are merely therapeutic dreams, that all the above and many others too numerous to mention are on their way to that vast therapeutic cemetery, where repose the sacred memories of drugs of once such reputed potency as human skull, viper's flesh, millipeds, human urine, crab's claws, et cetera.

We could pardon the above selections on the ground that these drugs are contained in the U. S. P. or list of standards, were it not for the principle responsible for the selection. Again let me make clear that it is not certain inert drugs that we are after, but a false principle underlying their selection—a principle, that selects a drug because it has certain recommendations, instead of selecting it from a knowledge of certain natural laws which there is reason to suppose it will favorably influence. This same principle more fully developed fills the doctor's drug-shop with numerous proprietaries, which bear a somewhat analogous relation to the profession, that the patent medicines bear to the laity. Once in this bad company, our erring brother goes on from bad to worse until he reaches the "limit," where he derives great benefit from "Gowan's Pneumonia Cure," "Tasteless Quinine" shown by analysis to be pure gypsum, "Nuclein," each dose of which contains as much nuclein as a piece of pig's liver the size of a grain of wheat, "Cactena Pellets" a thousand of which, taken at once, produce not the slightest change in the radiographic tracings, and many others of equal potency and repute.

Pathology, *i. e.* the science of disease, and the above practice, polypharmacy, are absolute incompatibles. For once the student gets a thorough understanding of those laws that express themselves in the structural and functional alterations which we call disease, he becomes professionally independent, and will never permit himself to be rendered dependent by being enmeshed in the tangled web of dogma. He has, for all time, chosen nature, God's handwriting, as

the rule and guide of his professional faith, and never will he follow save when the lamp of science is trimmed and burning.

To-day one of the greatest fights of organized medicine is being waged against this curse of polypharmacy, and I venture the opinion that when a remedy is found it will consist of more thorough courses of pathology in our medical schools. Teach medical students not only a classification of pathological data, as is too often the case in the average text-book and medical school, but teach them also, the laws or principles governing the production of phenomena, and thus underlying and determining classification.

Such is the wholesome destructive influence of pathology on the false therapeutics of the past.

But pathology has a constructive as well as a destructive influence on materia medica and therapeutics, and on the ashes of false hopes it is building a powerful and permanent materia medica of specific therapeutics.

The old therapeutic agents (I mean those used before 1880) had their origin in a chance discovery. Frequently discovered by the savages and used by them as arrow-poisons, or to relieve fatigue as in the case of coco-leaves, or as was the case with quinine, discovered by explorers.

Now I mention this not because their humble origin in any way detracts from their powerful and beneficent effect, for I am mindful that the message of God for the salvation of hundreds of thousands of human lives, writ in the hieroglyphics of nature on the udder of a cow, was translated for Edward Jenner by an humble milk-maid.

But I do lay stress on this origin to show that the drug was first accidentally discovered, and then its place either found or made. It was first the treatment and then the disease; the cart was before the horse.

Now compare with these the other class of remedies, all of which with the exception of vaccination have been the gift

of the last half century. Their important difference is not so much their powerful effect on disease, wonderful as it is, as that they are the product of a *new method* of therapeutic research. They are the prize of a search, not accidental discoveries, along lines of precision, projected from a more intimate knowledge of the cause of disease and the reaction of the tissues thereto. You observe that the new method begins with the disease, studies it carefully, watches nature minutely in her efforts to treat, and then with these suggestions from nature seeks the remedy.

As a result of this method of therapeutic research two classes of remedies have been found. The first, are the preventive measures, that have to do with preventive medicine. The results of preventive medicine are too well known for me to occupy your time in repeating a familiar, although wonderful story. Until 1885 preventive measures were the only class of these remedies used. In that year curative medicine, that is remedies applicable to those already diseased, was born of pathology. So auspicious was the time of its birth, that already it has developed such strength as to tell mightily against the forces of disease. My time will only permit me to hastily mention these curative agents.

In 1885 Pasteur gave us an absolutely specific and certain cure for those already inoculated with rabic virus.

In 1890 Kitasato gave us tetanus antitoxin, and in 1892 V. Behring gave us diphtheria antitoxin. Both these agents are sure and specific remedies when applied in time. Unfortunately tetanus antitoxin is rarely called for until it is too late.

Within the last year Flexner has perfected a serum-treatment for cerebro-spinal meningitis that has reduced a mortality of 75 per cent to 25 per cent. Good authorities believe that when this treatment is thoroughly worked out it will rival in efficacy diphtheria antitoxin.

Other remedies as thyroid extract in myxodema, bicar-

bonate of soda in diabetic coma, and calcium lactate in tetany are the contributions of pathology to materia medica and therapeutics.

There still remains that group of diseases caused by organisms producing intracellular poisons, such as typhoid fever, tuberculosis and pneumonia, but it is extremely probable that when one of these diseases is cured, the others, by the employment of the same principle, will rapidly succumb to the ingenuity of man. Toward this great end the work of Ehrlich, Bordet, Metchnikioff, Wright, Rosenau and Anderson rapidly hastens. Greater encouragement than this work in immunity affords, seems impossible except in the actual cure of these diseases.

The few minutes remaining will permit me merely to refer to Ehrlich's recent work on the treatment of trypanosomiasis. The importance of this work, is that for the first time the principles of pharmacological research have been dictated by pathological data, and used with splendid success. This closer union of pathology and pharmacology is the dawn of a new day in pharmacognacy.

In conclusion I wish to leave well rooted in your minds this fact: The student of disease obtains the tutelage of nature only upon passing a rigid examination on pathology. This tutorage of nature, whereby we become her disciples, lends a sanctity to our calling, and he who does not realize this loses one of the chief attractions of medicine.

Sir Thomas Browne has beautifully expressed this office of nature in these words: "Thus there are two books from whence I collect my divinity, besides that written one of God, another of his servants, nature, that universal and public manuscript, that lies expansed unto the eyes of all. Those that never saw him in the one have discovered him in the other. This was the scripture and theology of the heathens; the natural motion of the sun made them more admire him, than its supernatural station did the children of Israel. The ordinary effect of nature wrought more admiration in them

than in the other all his miracles. Surely the heathen knew better how to join and read these mystical letters than we Christians, who cast a more careless eye on these common hieroglyphics, and disdain to such divinity from the flowers of nature."

The lawyer with an unsettled question goes to another man fallible like himself, and thus is man supreme authority in law.

The preacher, with an unsettled question, seeks the scriptures, God's written message, writ by man.

The doctor with an unsettled question goes to nature, God's message to his creatures first hand, writ by Himself, and so is the saying of Cicero true: "There is nothing in which men so approach the gods as in giving health to other men."

ANAPHYLAXIS AND ITS RELATION TO PRACTICAL MEDICINE.

By Richard N. Duffy, M.D., New Bern.

Modern medicine is the result of a combination of empiricism, genius and painstaking endeavor. A great many of our ideas and methods to-day were preconceived in master minds; others there are which were stumbled on. In the whole domain of modern medicine there are no more interesting subjects than infection, immunity and serum therapy, and there is no better illustration of what genius and untiring effort, preceded often by empiricism, have done for scientific medicine than the history of these subjects. The greatest advances in the last half century of medicine have been made along these lines, and the same will perhaps be true of the next half. There are such infinite possibilities and such alluring paths of study to the scientific investigator in these new fields, and so many yet unsolved problems that the vast number of experiments and the results here are not to be wondered at. Vaccination, the widal reaction, diphtheria and tetanus antitoxin, tuberculin and mallein are the conspicuous but only a few of the results of this work.

Serum therapy is in fact, however, not new. Mithridates by taking gradually increasing doses of poisons established in himself resistance. It is stated also that he fed ducks with poisons and then proposed to use their blood as an antidote. Empiricism, however, here as elsewhere preceded rationalism. Vaccination was practiced and put on its present basis by Jenner long before the scientific explanation was given by Pasteur's work on fermentation, vaccination against anthrax, chicken cholera, swine plague and rabies. A little later also the work of Koch and Metchnikoff, Nissen, V. Behring and Bouchard served to open up the portals of this vast new field.

Since the discovery of tetanus toxin by Brieger and Fränkel and of diphtheria toxin by Roux and Yersin, and the production of their specific antitoxins by Behring and Kitasato in 1890, the possibilities of this new method of treatment seemed indeed great and alluring, and much experimental work has been done toward producing specific sera in the treatment of the various infectious diseases.

There is scarcely a useful method of treatment in medicine which does not occasionally have its compensating disadvantages depending upon the many and variable factors which go to make up the sum total of results in the human organism. It has long been known that the blood of animals may be toxic to other animals when injected into their circulations. Horse serum has been used almost exclusively in the various inoculations that have been made in men on account of its comparative lack of such toxic qualities. Untoward results have been frequently noted, however, after these injections and sudden death even has occasionally been observed. These phenomena were at first not understood. Von Pirquet and Schick collected a number of cases in which the injection of horse serum into man was followed by urticarial eruptions, joint pains, fever, swelling of the lymph nodes, œdema and albuminuria. These symptoms appeared from eight to thirteen days after the injection of the serum. This reaction was termed by Von Pirquet and Schick "Die Serumkrankheit" or the "serum disease." It has been known almost since the discovery of diphtheria antitoxin that guinea pigs which have been used for the testing of the antitoxin frequently die when given a subsequent dose, but no importance was attached to the fact until 1905. However, when Ehrlich was visiting this country in 1904 Theobald Smith spoke to him about the phenomenon in guinea pigs, and Ehrlich gave the problem to Otto to work out. His work on the subject was published late in 1905 just before that of Rosenau and Anderson, of the hygienic laboratory, who had been working on the subject at the same time. When Rosenau and Ander-

son first encountered the phenomenon they conceived the idea that there might be some relation between it and sudden death following injections of antitoxin in man. They also foresaw that the problem might have a close relation to immunity. Both of these hypotheses have been pretty clearly established.

Many observers before Rosenau, Anderson and Otto had noted the phenomenon, as we have said, but they did not offer a satisfactory explanation. As early as 1839, Magendie found that rabbits which had tolerated two intravenous injections of egg albumin without any ill effects, after a lapse of a certain number of days, died immediately after a further injection. Later workers with precipitins have frequently noted the same thing. Knorr, in 1895, found that guinea pigs develop an increasing sensitiveness to tetanus toxin. Hericourt and Richet, in 1898, found that they were not able to immunize dogs against eel serum, but that, on the contrary, the dogs developed an increasing sensibility and finally died. Behring and Kitashima, in 1901, found an increasing sensitiveness to tetanus toxin on the part of guinea pigs. Portier and Richet, in 1902, found that dogs given a very small dose of a glycerine extract of the tentacles of actinia, after a lapse of fifteen or twenty days, quickly succumbed to a subsequent injection. Arthus, in 1903, found that repeated injections of horse serum in rabbits at some days interval, even in small doses, were followed by results which were local or general and benign or grave according to the number and methods of the previous injections. Richet, in 1904-1905, again experimenting with actinia, found that if congestin and thalassin (two poisons extracted from actinia) were injected into dogs in doses so small as to cause no symptoms, that, after a lapse of twenty-two days, they became very sick or quickly died after a subsequent injection.

Von Pirquet and Schick (vide supra), in 1905, however, were the first to reach original and far-reaching conclusions in regard to the phenomenon which they occasionally observed in man after injection of horse serum, and which they

termed the "Serum Krankheit." They showed the relation of the phenomenon to the hypersusceptibility observed in animals and indicated the importance of these facts in general pathology. They cited the well-known tuberculin reaction as analogous.

Portier and Richet, in 1902, were the first to suggest the name Anaphylaxis to indicate hypersensitiveness to a poison. This term is now employed to indicate the state of hypersensitization of man and animals to proteid substances either poisonous or nonpoisonous. Anaphylaxis, then (from *ana,* against, and *phulaxis,* protection) is a condition of exaggerated susceptibility of the organism to a foreign substance of proteid nature, which may or may not be poisonous.

Otto's work on the essential features of anaphylaxis was the first to appear. Otto designated the phenomenon as the "Theobald Smith" phenomenon. He demonstrated, what is now well known, the fatal result of a second injection of horse serum into guinea pigs. He showed that the phenomenon was not due to the presence of diphtheria toxin in the circulating blood but that the presence of these toxins renders the animals more susceptible than the injection of horse serum alone. He demonstrated that immunity to the reaction might be obtained by repeated injections of large amounts of serum at short intervals. He also demonstrated that specific precipitins played no part in the reaction.

The most complete and brilliant work on anaphylaxis has been done by Rosenau and Anderson of the Hygienic Laboratory of the U. S. Public Health and Marine Hospital Service. They have shown that, although a single injection of horse serum is usually harmless to a normal guinea pig, a second injection after a definite interval is usually fatal. The length of time necessary between the first and second injections they termed the "incubation period," and this was found to be about ten days. They demonstrated, as Otto had done, that the poisonous property of the serum bore no relation to the specific toxins or antitoxins in the serum.

They found that the poisonous principle was specific, and that the reaction would occur only after a second injection of an homologous serum. They demonstrated that a guinea pig may be sensitized to several different proteids at the same time and react to a second injection of each, provided, of course, the first reactions were not fatal. Hæmolysis was excluded as a factor and also precipitin formation, which Otto also demonstrated. They advanced the theory that the substance which sensitizes the guinea pig is the same which later poisons it, and that perhaps profound chemical changes in the central nerve cells take place after the first injection. They have not been able to isolate the sensitizing substance, but they have shown that it is unaffected by the various chemical preservatives; by drying; by precipitation with ammonium sulphate or magnesium sulphate. It is not affected by heating to 60 degrees centigrade for thirty minutes. Thyroidectomy and splenectomy have no effect on the reaction. The blood serum of sensitized animals contains the poisonous substance ("anaphylactin") as is demonstrated by the fact that normal guinea pigs may be rendered anaphylactic to horse serum by the injection of the serum of sentitized pigs into their circulations.

Rosenau and Anderson have shown further that the toxic principle *is destroyed* by heating at 100 degrees centigrade for twenty-five minutes. It is not affected by various chemicals nor alkaloids and similar substances, such as taka-diastase, pancreatin, rennin, myrosin, invertin, emulsin, pepsin in acid or alkaline solution, ingluvin, malt, papain, atropin, strychnine, morphine and caffein. It is not affected by freezing at 15 degrees Fahr., nor by filtration through porcelain, drying, precipitation and dialysis, and exposure to the X-rays. Extremely minute quantities of the serum may cause death in the guinea pig, *e. g.* $\frac{1}{100}$ cc.

A certain time must elapse between the injections before the animal becomes anaphylactic. This period is from ten to twelve days. Second injections within this period have no

ill effect. When an animal has once entered into the condition of anaphylaxis the condition apparently lasts as long as the animal lives.

Rosenau and Anderson, as well as Otto, have shown that guinea pigs may be rendered anaphylactic by feeding them meat or serum. It is interesting along this line that Uhlenhuth has found that the blood of rabbits becomes capable of precipitating egg albumin after feeding for some time with this substance, and Metalnikoff has reported immunization after feeding one animal with the blood of another species.

A most interesting fact also has been worked out by Rosenau and Anderson, and that is, that the hypersusceptibility developed in a female guinea pig may be transmitted directly to her young. This transmission is solely a maternal function. The milk of the mother was entirely excluded as a factor in the transmission.

Rosenau and Anderson have shown also that guinea pigs may be actively but not passively immunized against anaphylaxis; in other words, anti-anaphylaxis may be induced. This may be arrived at by (1) repeated injections of serum during the period of incubation; or (2) by recovery from a reaction due to a second injection during the stage of anaphylaxis. Besredka and Steinhardt question this condition as a true immunity, but think it rather a return of the sensitized guinea pig to the normal state. Gay and Southard, also rather think that the guinea pig is in a "refractory" condition due to a prolongation of the period of incubation rather than that they have been actively immunized. Rosenau and Anderson, however, believe that the condition is one of true immunity.

Another most interesting phase of this subject is the induction of immunity to specific bacteria by rendering animals anaphylactic to the proteids of the bacteria. This Rosenau and Anderson have been able to do in the guinea pig with extracts of colon and typhoid bacilli. They failed to obtain immunity in their experiments with anthrax. It thus seems

that here, as in antitoxic immunity, there is no law applicable to all cases, but that there are certain limitations which it will be necessary to work out.

The explanation of anaphylaxis is not certain. Several theories have been advanced. As stated previously, Rosenau and Anderson believe that the substance which sensitizes the guinea pig is the same which later poisons it, and they think that profound chemical changes probably occur in the central nervous system as a result of the first injection. Vaughan, in 1906, explained the phenomenon by an application of Ehrlich's side chain theory. He thinks that the first injection of the strange proteid is broken up into components, one of which is toxic, but this breaking up takes place so slowly that the animal is not poisoned. The body cells, however, learn by the first injection how to break up the complex molecule. When the next injection is made, then, the proteid is violently disrupted and the large quantities of toxic principle thus liberated cause poisoning. Vaughan and Wheeler, in 1907, elaborated this theory further by studies upon white of egg and bacterial proteids. They believe that in the case of white of egg the poisonous portion so influences certain cells of the body that a new ferment, in the form of zymogen, is elaborated which remains in the cells and takes part in the rapid breaking up of the proteid molecule at the second injection.

Gay and Southard found in guinea pigs dying from a reaction, and in those chloroformed that had previously recovered from a reaction what they consider as characteristic lesions. They found considerable hemorrhages, in one or several organs, both macroscopic and microscopic. Gastric hemorrhages were especially frequent. They also found fatty changes in voluntary muscle fibers, heart muscle fibers and in nerve fibers. Their explanation of anaphylaxis is that there is a substance in horse serum, which they call anaphylactin, which is not absorbed into the tissues, is not changed and is very slowly eliminated. Thus, after an in-

jection of horse serum, anaphylactin remains and acts as a constant irritant to the body cells so that their activity for the other elements of horse serum is greatly increased. At the end of two weeks constant stimulation by the anaphylactin, if another injection of serum is given, the cells are overwhelmed in the exercise of their increased assimilating functions, and functional equilibrium is disturbed to such an extent that either local or general death occurs.

Besredka and Steinhardt think that anaphylaxis and anti-anaphylaxis are phenomena similar to the precipitating and absorbing actions which govern the relation of colloids among themselves.

Otto believes that, according to the side chain theory, the first injection results in a weakening or disappearance of the portions of the antigens which are in the body, and thus an apparent hypersusceptibility results.

Richet thinks that anaphylaxis is due to the presence of a toxicogenic substance, nontoxic itself, but producing a poison by reaction with a second injection of the extract. He supports his view by experiments with a mixture of the serum of a sensitized dog and the extract in *vitro*. He claims that this mixture is more toxic than the extract alone.

So much for a review of the phenomenon itself. We are now led inevitably, as in all subjects pertaining to medicine, to the question of its practical nature, and we immediately enter an alluring field of surmise and speculation. How much is true and how much is false, it remains for further investigation to thrash out.

There are certain differences as well as similarities in the reaction in man and the guinea pig. In five or ten minutes after an injection in the pig there are symptoms indicative of respiratory embarrassment; scratching at the mouth, coughing and sometimes spasmodic, rapid or irregular breathing; the pig becomes restless and agitated. This stage of exhilaration is soon followed by one of paresis or complete paralysis. Spasmodic, jerky and convulsive movements now

supervene. Pigs in this stage may recover, but usually convulsions appear and are almost invariably a forerunner of death. The symptoms do not always follow in the order given. Death usually occurs within an hour and frequently in less than thirty minutes.

A single initial dose in man may be followed by a reaction, but never is this so in a guinea pig. Both, however, react to a second injection. In man the symptoms vary greatly in kind and intensity. As a rule, the major symptoms come on a few minutes after the injection, but in a less severe form the onset may be delayed for an hour or two. In the milder form there is a feeling of faintness, substernal pain, some difficulty in breathing, paroxysmal cough, sneezing and itchiness, particularly of the scalp. An annoying urticaria, œdema of the face and swelling of the tongue may occur, also nausea and vomiting in some cases. In addition to an increase in intensity of the above symptoms, in the severer type the patient becomes cyanotic; shows signs of collapse; may froth at the mouth, and there is a feeling of impending death. In the most severe forms there develop paresis or paralysis and convulsive movements, as in the guinea pig, and death rapidly follows. Wiley and Gillette each have recorded a fatal case during the past year. Landis has reported a series of seven cases of untoward symptoms following the use of Maragliano's antituberculous serum. Waterhouse records a personal experience of sensitization following the use of antistreptococcic serum. Schmitt reports a personal experience in which he had moderately severe symptoms following a prophylactic injection of diphtheria antitoxin. A curious instance about his case is that he is always subject to asthmatic attacks when exposed to the odor of horses. Boone has had a similar experience; Wiley's fatal case was affected in like manner when about horses, and this has been true of many of the reported cases. Gillette's fatal case had been subject to asthma for years. During the past

year, F. L. Taylor, Quigley, Dreyfoos and Thomas have each reported cases of collapse following the injection of antitoxin, but none of their cases were fatal.

V. Pirquet and Schick, as stated previously, have collected a number of cases in which the symptoms following the antitoxin were very mild and developed only after an interval of from eight to thirteen days. The symptom-complex in these cases they designated as the *Serumkrankheit*. As mentioned before, these cases usually exhibit urticarial eruptions, joint pains, fever, swelling of the lymph nodes, œdema and albuminuria. The urticaria may persist for months, as in a case reported by Blain. V. Pirquet and Schick have shown that the first injection renders the individual sensitive to future injections, so that, if a second injection is given in from fourteen days to four months after the first, a reaction occurs almost at once or at least within twenty-four hours. They call this the "immediate reaction." If the second injection is given after a period of four months, the reaction, while delayed from five to eight days, occurs earlier than the first reaction, and this they term the "accelerated reaction."

Royer has collected thirty cases illustrating the effects of a second injection of diphtheria antitoxin in man. He thinks that there is little doubt that second injections of serum, after considerable intervals of time, cause immediate disturbance several days earlier than that met with as a normal reaction.

The "immediate reaction" of V. Pirquet and Schick, according to accumulated statistics, occurs in from 18-27 per cent of cases receiving injections of antitoxin; the "accelerated reaction," in probably 30-40 per cent of the cases. These reactions are annoying but in no case have they resulted in death. From the accumulated experience of others it has been found that daily injections of serum for a period of several days in no way increase the disturbances which are commonly expected about the eighth or tenth day; that with a two-day interval between injections the rashes and

febrile disturbances are more marked; three day intervals cause still more marked symptoms; and with four-day intervals graver disturbances may be the result.

In the guinea pig, as we have noted, immunity to anaphylaxis may be secured in one of two ways. Either by repeated injections of serum before the expected time for anaphylaxis to become established or by the recovery of the pig from a second injection during the stage of anaphylaxis. In man, however, contrary to what one finds in guinea pigs, the evidences of hypersusceptibility are very variable in the time of their appearance; and, furthermore, repeated injections in the first ten days do not develop immunity nor does recovery from a reaction render one immune to further injections.

Currie, after studying the effects of repeated injections of horse serum in patients at the Glasgow Fever and Smallpox Hospital at Belvidere, concludes that it is apparent from the facts detailed by him that repeated injections of horse serum induce symptoms of hypersusceptibility in man, but it is also apparent that the same facts lend no countenance to the suggestion that the death of persons suffering from diphtheria is to be apprehended as the result of repeated injections of antidiphtheric serum.

The fact that guinea pigs may be sensitized by feeding them with horse meat or horse serum brings up the interesting question of the cause of certain cases of apparent food poisoning in man. If man can be sensitized, like the guinea pig, by eating certain proteid substances, perhaps those interesting and obscure cases which one occasionally sees of sudden and sometimes serious symptoms habitually following the eating of fish, sea foods of various kinds, and other articles of diet may be but a reaction of an individual in a state of anaphylaxis toward the article eaten.

Again, the maternal transmission of anaphylaxis in guinea pigs is of great interest in connection with the ques-

tion of increased susceptibility in man to certain infectious diseases, particularly tuberculosis. One often sees families in which tuberculosis acts as a veritable scourge and the members of such a family seem to have no resistance to infection. May not these cases be due to inherited hypersusceptibility from the mother; in other words, inherited maternal anaphylaxis? This maternal transmission of anaphylaxis may also explain the sudden and sometimes fatal symptoms previously mentioned which one occasionally sees after first injections of horse serum in man. The demonstration of this maternal function in guinea pigs by Rosenau and Anderson is the first actual proof of inherited hypersusceptibility. Inherited immunity has, as is well known, been previously demonstrated to be a fact.

The fact that Rosenau and Anderson have been able to render guinea pigs immune to typhoid and colon bacilli by rendering them anaphylactic to proteid extracts of the specific bacteria opens up a new line of investigation into the specific treatment of these and other infections. Passive bacterial immunity may be now a much easier problem than it has heretofore.

The time required for the development of anaphylaxis in the guinea pig and in cases of the "Serumkrankheit" in man bears a close resemblance to the period of incubation of some of the infectious diseases and anaphylaxis thus gives a possible explanation of this period. It is hardly a coincidence that the ten to fourteen day incubation period of a number of the infectious diseases corresponds so closely with the time required to sensitize a guinea pig to a foreign proteid. In those infectious diseases with a short incubation period, like pneumonia, the crisis, which usually occurs about the tenth day may have a similar explanation. Those diseases which are produced by soluble toxins, as tetanus and diphtheria, evidently do not come in this same category.

Finally, in regard to the injection of antitoxin in view of the new light which we have received on this subject by this

recent work on anaphylaxis, nothing so far published should change our duty to a patient suffering from diphtheria or tetanus. Antitoxin should be administered freely and should be given at frequent intervals, as it has been shown (vide supra) that the untoward effects increase in a severity with the length of the interval between the injections. A fatal result is most unusual, but it must be admitted that symptoms of collapse and even death may extremely rarely occur after an initial dose of antitoxin, but, in view of the seriousness of diphtheria and tetanus and the marvelous effect serum therapy has had in reducing the mortality of diphtheria especially, we should not hesitate in the administration of antitoxin. However, as has been previously brought out, asthmatic patients seem to be particularly prone to the serious untoward effects of antitoxin treatment, and these cases had best be avoided. Gewin, in a series of 200 patients given injections of diphtheria antitoxin, gave every alternate patient calcium chloride, gr. 7 1-2-15, by mouth when the antitoxin was injected. He claims that in those patients receiving the calcium chloride there was either no disturbance at all or, at the most, very slight. It would therefore, perhaps, be wise to give calcium chloride with every injection of antitoxin as a phophylactic measure, and, wherever possible, the administration of the calcium chloride should precede the antitoxin.

There is still much work to be done on this most important subject, and the future will probably bring out many interesting points along this line. Rosenau and Anderson believe that the results so far obtained show that anaphylaxis has a practical significance in the prevention and cure of certain of the infectious diseases, and that this is true we hope may be shown in the near future.

In conclusion, I wish to thank Dr. John F. Anderson, of the Hygienic Laboratory of the U. S. P. H. and M. H. Service for much valuable assistance in furnishing me with literature and references.

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SERUM-THERAPY IN EPIDEMIC CEREBRO-SPINAL MENINGITIS.

By F. R. Harris, M.D., Henderson.

When we recall the mortality and sequelæ of epidemic cerebro-spinal meningitis under the old treatment we face the future with a feeling akin to an inspiration and a new hope. When we remember that behind us is a mortality of 75 per cent and in many epidemics a very much larger mortality, and then add to this the deformities in those who survived—such as blindness, deafness, deaf-mutism; various types of paralysis—strabismus, facial paralysis, monoplegia, hemiplegia or diplegia, contractures—sometimes temporary, more often permanent,—epilepsy, and all grades of mental deficiency, even to idiocy; and then read the conclusion of Flexner and Jobling in histories of four hundred cases, "that the anti-meningitis serum when used by the subdural method of injection, in suitable doses and at proper intervals, is capable of reducing the period of illness; of preventing, in large measure, the chronic lesions and types of the infection; of bringing about complete restoration of health, in all but a very small number of the recovered, thus lessening the serious, deforming, and permanent consequences of meningitis; and of greatly diminishing the fatalities due to the disease"— then, indeed, with our faces to the future, do we feel like crying out, Eureka! Weichselbaum has discovered and finally established the fact that the cause of this form of meningitis is the diplococcus intracellularis. The serum treatment of this disease has been done by various men, but to Flexner and Jobling, of the Rockefeller Institute for Medical Research, chiefly belong the credit of bringing it to its present state of advancement. However, due credit should be given to Dr. Charles Hunter Dunn, of Boston, as well as several others in various parts of the world. The diplococcus antiserum

(Flexner's serum is bactericidal rather than antitoxic in nature, wherefore it should not be called meningitis antitoxin, but meningitis antiserum) as used at present is prepared in the horse. This serum may be obtained from the Rockefeller Institute for use under conditions of control which they prescribe. They give the following instructions for the use of the serum: "The antiserum should be kept in a refrigerator until it is to be used, when it should be warmed to the body temperature before it is injected. The antiserum is to be introduced directly into the spinal canal after the withdrawal of cerebro-spinal fluid by means of lumbar puncture. The quantity of antiserum to be used at a single injection should not exceed, for the present, thirty cubic centimeters. It is desirable, although it would not appear to be essential, to withdraw from the spinal canal at least as much fluid as the amount of antiserum to be injected. The injection should be made slowly and carefully to avoid the production of symptoms due to increased pressure. This precaution should be exercised especially where the quantity of cerebro-spinal fluid withdrawn is less than the amount of antiserum to be injected. The injection of the antiserum should be repeated every twenty-four hours for three or four days or longer. * * * As much as 120 cubic centimeters of the antiserum have been injected into the spinal canal in four days without causing unpleasant symptoms. The evidence at hand indicates that the earlier in the course of the disease the injections are made the better the results. Hence, should the film prepared from the first fluid obtained by spinal puncture show gram-negative diplococci, some of which are within leucocytes, an injection of the antiserum should be made immediately and without waiting for the result of culture tests. Should the diagnosis be left in doubt or the disease prove later to be of another nature than epidemic meningitis, no harm will have been done by the injection of the antiserum. Although the best results have thus far been obtained where

the antiserum has been injected early in the disease, yet the serum should be used in its later stages also until our knowledge governing the value of the serum becomes more precise. The indications at present are that it is useless to employ the serum in the very late stages of the disease in which chronic hydrocephalus is already developed. Precise records of the manner of action of the antiserum upon the general symptoms of the disease and the local inflammation and the diplococcus should be kept. Information is greatly desired on the influence of the antiserum upon the number, appearances, growing properties, etc., of the diplococcus, upon the relation of the diplococcus to phagocytosis, and on the number and appearance of the leucocytes, before and after the antiserum injections. Counting the leucocytes in the circulating blood, before and after the injections, would help determine whether the antiserum tends to bring a greater number of leucocytes into the inflamed membranes, or whether it leaves the number unchanged, or causes cessation of the emigration. Until its value is clearly proven, its manner of action should be carefully observed and recorded so that a definite decision may be reached as quickly as possible." The earlier the injection the better the result, *e. g.* in 361 cases cited—those receiving the injection from the first to third day showed a mortality of 16.5 per cent. From the fourth to seventh day a mortality of 23.8 per cent. Later than the seventh day a mortality of 35 per cent.

Dr. Dunn, of Boston, says: "The three principal effects of the use of the serum seem to be—first, to produce a fall of temperature; second, to produce a rapid improvement in the patient's general condition, accompanied by a more or less marked relief of certain symptoms; and third, to cut short the course of the disease." He concludes by saying, (1) "The use of Flexner's antiserum is of great value in epidemic cerebro-spinal meningitis. I believe its value to be comparable to that of diphtheria antitoxin in diphtheria. (2) The

use of the serum at times aborts the disease, frequently rapidly relieves its symptoms, shortens its course, lessens the liability to sequelæ, and greatly reduces its mortality. (3) The serum should be used as early as possible in all cases, even of suspected epidemic meningitis. (4) It should be frequently repeated as long as there are symptoms or any tendency to relapse. (5) Late chronic cases are unfavorable for the use of the serum, but any case in which the diplococci are present has some hope of relief. (6) Some cases are resistant." After the withdrawal of the cerebro-spinal fluid, the routine dose of serum should be 30 cc. In severe and in fulminant cases 45 cc. should be used. The dose should be repeated every twenty-four hours until four doses are given and then if the diplococci have disappeared, use no more unless the symptoms require it.

I repeat—under the old treatment 75 per cent of the cases died; under the antiserum treatment in a series of 393 cases taken as they came, as to age of patient, duration of the disease, etc., 79.9 per cent recovered and 20.1 per cent died. By recounting such achievements as these by others, may not we of the North Carolina Medical Society catch the fire of enthusiasm and go forward into similar fields of undeveloped knowledge and do things that will prove a boon and a blessing to humanity yet unborn, and at the same time shed a luster and renown upon our society, State and nation?

ARTERIO-SCLEROSIS OF THE UTERUS WITH REPORT OF A CASE.

By Robert B. Slocum, M.D., Wilmington.

The case is one of severe uterine hemorrhage and "apoplexy" of an ovary in a woman twelve years past the menopause. The patient, a white woman 57 years old, was sent to me by Doctor George F. Lucas of Currie, N. C.

Complaint: Bleeding from the womb and pain in the right side.

Family History: Unimportant.

Past History: Generally negative. Menstruation began at fourteen; married at eighteen; during first pregnancy (19 years) patient had typhoid fever and aborted twins at about third month. Since then she has borne eight living children and aborted twice. Menstruation ceased at 45 years. One year later bleeding recurred at irregular intervals: this grew to be very serious and patient was in a hospital eight months for treatment. After three years the bleeding stopped entirely and she enjoyed good health for eight years. During this time there was no bleeding at all.

Present Illness: One year ago, while lifting a rather heavy load, patient was seized with a severe pain in the right side. She was put to bed and a physician, who saw her at the time, called the attack acute appendicitis. The acute pain gradually subsided but has never left entirely. Shortly after this acute attack, while still in bed, uterine hemorrhages began, small amounts at first at irregular intervals, but increasing in spite of the treatment. She was kept in bed and given ergot freely for a month but with no improvement. The uterus was then curetted and packed but the bleeding recurred at once even more profusely than before. From this time until admission to the hospital (Aug. 27th) the bleeding was very profuse and patient grew weak and anæmic: in fact, she has

never been out of bed a whole day since the acute attack a year ago. Curettage and packing (with various local applications) was repeated twice more without avail. It is noteworthy that there has never been any foul odor to the discharge.

Physical Examination: I saw the patient for the first time on August 27th. She was anæmic (hæmoglobin 35 per cent) but well nourished. The general examination was negative except for a systolic heart murmur which I thought to be hæmic in origin. There was no cardiac enlargement and the murmur was not transmitted to the axilla. No general arterio-sclerosis beyond what would be expected in a woman 57 years old. The urine showed a trace of albumin but no casts. Pelvic examination revealed a profuse, bloody discharge from the uterus, the blood being clear and having none of the foul odor characteristic of cancer. The cervix was hard, smooth, and pale. The uterus was rather large but otherwise seemed normal. A definite mass was felt in the region of the right ovary.

In view of the fact that the uterus had been curetted so much and the patient was in such bad condition an immediate hysterectomy was advised.

Operation: Aug. 29, 1907. Upon opening the abdomen the omentum was found to be adherent to the right ovary. This was easily separated and the ovary was found to contain a blood clot which had broken through the capsule and was adherent to the omentum. The ovarian arteries were hard, in fact, the left one continued to spurt after being tied reasonably tight. The uterine arteries also were hard and brittle so that they could be easily felt throughout their course. A pan-hysterectomy was done and the patient made a good recovery, leaving the hospital Sept. 23d, in excellent condition.

Pathological Examination: The uterus measures about 12 cm. in length, is hard and smooth. No infarct is found any-

where in it. Upon splitting it lengthwise the arteries stand out prominently in the musculature as hard, non-collapsible tubes. The right ovary contains an old clot of blood as large as a hen's egg. This clot seems to be simply an extravasation into the substance of the ovary. At one point the capsule is ruptured and some of the clot has escaped.

Microscopic Examination: The uterine mucosa shows nothing to suggest cancer. The uterine musculature is largely replaced by connective tissue and the arteries are much thickened, especially in the media (cf. section No. 2). The arteries are not occluded but thick and patent.

As very little was to be found in the text-books, I was interested in looking up the literature. Kelly[0] mentions arteriosclerosis as a cause of uterine hemorrhage and gives a few references. Gebhard[1] and Orth[2] both mention it, the former stating that hyaline changes and calcification of uterine arteries are not rare.

Cruveilhier[3] first described a condition which he named "apoplexia uteri." He calls attention to the frequency with which hemorrhages into the body of the uterus are found at autopsy in cases of elderly women; the hemorrhages being limited to the body of the uterus, either into the mucosa or into the musculature. The condition he considers of no especial clinical interest as there is rarely any external bleed- and then only just before death and never in serious amounts.

Rokitanski[4] likewise speaks of "apoplexia uteri" in women of advanced age, the hemorrhages usually being into the fundus and posterior wall of the uterus, never into the cervix. At section the cavity of the uterus is often found filled with blood clots. Kleb[5] describes the same condition in which the uterine substance is hard, and on section "the rigid arteries stand out as whitish, non-retracting stumps."

Herxheimer[6] is the first to report a case in detail—a woman 52 years old who, at autopsy, showed chronic nephritis,

cardiac hypertrophy, and thrombosis, pulmonary infarcts and pneumonia, embolism of the right hypogastric artery, etc.

C. v. Kahlden[7] gives careful accounts of post-mortem findings in eight cases but no clinical histories. The eight cases are all in women of advanced age (from 52 to 87 years). The uterus may be large, small, or normal in size; blood clots are sometimes found in the uterine cavity; the hemorrhages are always into the body of the uterus and never into the cervix. On section of the uterus groups of arteries are found to have narrow lumens with thick, calcified walls. Microscopic examination shows the intima to be the coat chiefly thickened often obliterating the lumen entirely. The uterine muscle is largely replaced by connective tissue. All of his cases died of cardiac or pulmonary disease.

Dittrich[8] reports two cases of a similar character, 65 and 68 years, both having died of pulmonary disease. Simmonds[9] considers the hemorrhage to be due to weak cardiac action, the "apoplexy" being thus "only an agonal or preagonal phenomenon" which is usually of no clinical significance. So Barbour[10] says that "arterio-sclerosis after the menopause has been frequently described but never as accompanied by serious hemorrhage."

Popoff[11] describes a case of hemiplegia in a woman 40 years old, in whom both uterine arteries were found occluded by thrombi. Kaufmann[12], in speaking of cases of so-called "apoplexy of the uterus," says that they are due to arterio-sclerosis of the uterine arteries, and, as a rule, have no clinical significance. Bland Sutton[13] refers to the same condition, calling it fibrosis of the uterus.

Palmer Findley[14] reports the case of a woman of 70 years who, fourteen days before death, complained of pain in the abdomen and chest; at the same time there was a bloody uterine discharge. At post-mortem there was found hemorrhagic infarction of the lungs and of the uterus caused by plugging of the sclerosed arteries with clots from the heart. He makes the point that the arterio-sclerosis, in itself,

is not the cause of the uterine bleeding but only in connection with some circulatory obstruction, *e. g.* cardiac or pulmonary disease. This view is supported by the cases which we have cited: thus Herxheimer's case died with cardiac thrombosis, etc., all of v. Kahlden's cases died of pulmonary or cardiac disease, one of Dittrich's cases died of pneumonia and the other of emphysema.

It will be noticed that all of the cases quoted so far have been in women past the menopause, and have been of pathological more than of clinical interest. Whenever there has been any microscopic report the intima has been the coat chiefly thickened and the vessels are often occluded. This would seem to be the normal course. Westphalen[15] writing in connection with an article by R. Thoma ("Ueber die Abhangigkeit der Bindegeweb-sneubildung in der Arterienintima von den mechanischen Bedingungen des Blutlaufes") states that in infants the intima is almost free from connective tissue; in young menstruating women who have not borne children there is a small amount of connective tissue but in multipara there is a marked increase. He considers this to be due to the periodic changes in circulation. The only other arteries showing a similar condition are the splenic, the periodic circulatory changes in the spleen accounting for the condition. J. Balin[16] speaks of the obliteration of part of the uterine arteries after child-birth by the connective tissue of the intima.

In the following cases the clinical side becomes important on account of the external hemorrhages. It will be noted that the patients are all at, or near, the menopause: that the media is the coat involved most prominently, and that the vessels are not occluded but patent and rigid. (In making this grouping I have followed the suggestion of Solowij. cf. below.)

A. H. F. Barbour[17] reports a case of a woman 46 years old, multipara, upon whom a hysterectomy was done for severe hemorrhage. The vessels of the uterine mucosa and

musculature, and also those of the broad ligaments, were thickened chiefly in the media. Kustner[18] mentions the death of a woman 36 years old from uterine hemorrhage due to arterio-sclerosis. So Pozzi and Latteux[19] report two cases of hemorrhage from the same cause in patients 34 and 30 years of age. Marchesi[20] cites a case which is an exception to the rule in that the intima and adventitia were thickened instead of the media, although the patient was 32 years old and had required a hysterectomy to control the bleeding.

Reinecke[21] thinks that the hemorrhage is due to the fact that the sclerosed vessels are filled at the menses and the vaso-motors are unable to contract their stiffened walls. In all of his four cases (ranging from 40 to 45 years), hysterectomies were done for uterine hemorrhage. Chalmogoroff[22] reports three similar cases (29, 31, and 42 years of age), in which the media and adventitia were thickened.

Pechevin and Petit[23] also describe a hysterectomy for menorrhagia in a patient 41 years old. Curettage had been done twice but with no improvement. The uterine vessels were found to be much thickened. Morisani[24] had one case of "angiosclerosis invadens" (possibly syphilitic) upon which a vaginal hysterectomy was done to control the bleeding. Kustner[25] reports a case of a death from postpartum hemorrhage. The patient was a primipara, 36 years old, and examination showed sclerosis of the uterine arteries.

The most recent article is that of A. Solowij[26]. His case was 41 years old and had been curetted four times for uterine hemorrhage without avail. Vaginal hysterectomy was finally done. The uterus was 11 cm. long, the muscle largely replaced by connective tissue and the arterial walls thickened, especially in the middle coat. The author then suggests the classification which we have followed, *i. e.* (a) cases of so-called apoplexy of the uterus and (b) cases of external bleeding: the former occurring in older women and having, he says, no clinical interest, the latter being found

in women near the menopause. In discussing treatment he says that ergot is of no avail.

Our case is thus of special interest in that it belongs to the second class although the patient is twelve years past the menopause. It will be remembered that she did have severe hemorrhages for three years following the menopause and if hysterectomy had been done at that time it would have been of no special interest. While writing the paper I have found a report of a similar case. Hysterectomy was done upon a woman 55 years old for uterine bleeding and the uterus showed simply arterio-sclerosis although cancer was suspected. (Dr. T. J. Watkins[27]).

The common statement is that arterio-sclerosis of the uterus in women past the menopause is of no clinical interest because it causes infarction or apoplexy and not external bleeding. The case reported by Watkins and my own case both go to disprove this idea. Both of the cases were suspected to be malignant from the age, etc. That reported by Dr. Watkins had had severe hemorrhages for "four or five months," whether there had been any bleeding at the menopause or not is not stated.

In conclusion, arterio-sclerosis of the uterus may cause hemorrhage at the same period of life as cancer would. The diagnosis from very early cancer is difficult. As to treatment, ergot, curettage and packing, local applications are of no avail. In most of the cases reported a complete hysterectomy was done rather than a supravaginal because of the questionable diagnosis.

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SOME RECENT VIEWS CONCERNING THE NATURE OF TYPHOID FEVER.

By L. B. Newell, A.B., M.D., Charlotte.

Mr. President, Ladies and Gentlemen:—The title just announced would seem to indicate that my paper might more properly have been presented under another section, and certainly that is true. But since it is my intention to attempt to present for your consideration some recent ideas concerning the nature of typhoid fever and to endeavor to account for some of the manifestations of the disease by a theory which involves both chemical and a physiological processes it has not seemed entirely out of place to present the paper under this section.

We are approaching the utopian threshold of accurate knowledge with unprecedented rapidity; whether it shall ever be reached we do not know; certainly it is little to be desired that man will ever have come to dwell in those elysian fields where there need be no more work or effort. Would life be worth the living if we knew all and there were no new "worlds to conquer"? Relatively speaking it has not been long since typhoid fever, as a distinct disease, emerged from the obscurity of confusion with a number of other fevers which bear a more or less close resemblance. Only a few decades ago Eberth isolated and described the bacillus typhosus so accurately that succeeding investigators have been able to add but little to his observations concerning the active cause of the disease. However, little by little, our knowledge has extended until modern conceptions of the disease differ in many ways from those which obtained when even some of the younger members of the profession entered the ranks as practitioners. Some indeed will be perfectly familiar with what I shall say in this paper; others perhaps will not agree with the views advanced; but in any case it can do no harm if I attempt to present—imperfectly enough

perhaps—some thoughts along the line of the more recent developments in the study of typhoid fever.

Perhaps indeed what I shall have to say is not all true; at least, however, it is a fascinating theory upon which we may account for some phases of what may be called the pathological physiology of one of the commonest of all diseases. By contrasting some of the older ideas with the new it will doubtless be the easier to make the latter clearer.

For a long time it was believed that the bacillus, after having been taken into the intestine, multiplied and developed its poisons chiefly in the lumen of the gut and in the lymphatic tissues of the bowel wall, and that the poisons absorbed into the body itself caused the constitutional symptoms. It was later discovered that the germs could be found in other organs and tissues in practically all cases. This established the fact that the blood must convey the bacilli from the intestine to the various parts inside the body; for we may consider that the gastro-intestinal tract, including gall-bladder as well as the urinary bladder, ureter and pelvis of the kidney are not within the body but really outside. It was believed that the micro-organisms did not pass into the blood in any considerable numbers, and that it was only late in the course of the disease that this happened. Within the past few years, however, we have come to realize that typhoid fever is not a local disease in the sense that specific micro-organisms develop in portions of the body as is the case in diphtheria, but that it is really a bacteræmia—a general infection of the blood—and that the intestinal and mesenteric lesions are merely local manifestations of the infection. The lymphoid elements of the intestines, carrying out the function of the lymphatic tissues, acting simply as outposts take up the bacteria and, in their efforts to destroy them, become inflamed just as any lymphatic gland does into which an infected area drains.

It is not necessary to repeat what many of us know already; that the presence of typhoid bacilli in the intestine does not

necessarily mean that the patient has typhoid fever, for there are many individuals who are apparently healthy, but who nevertheless are carrying constantly millions of typhoid bacilli within their bowels. For a person to manifest the symptoms of typhoid fever, it is necessary for the bacilli to enter the blood. And indeed something more is necessary, for it appears that so long as these micro-organisms are alive, *i. e.* so long as they are not attacked and destroyed by the cells of the body, no symptoms are manifest. In proof of this, one might cite the fact that typhoid bacilli have actually been isolated from the blood of individuals who gave absolutely no evidence of any infection at the time, but who subsequently came down with the disease. In other words bacilli were found to be present in the blood during the period of incubation—a period which, in the light of such evidence, might be counted by days or weeks or months or years. It can readily be seen, however, that this could be demonstrated relatively infrequently because of the few opportunities for such investigation.

Now, with these ideas before us let us ask and answer the query: What is the essential nature of typhoid fever? Instead of being an intoxication resulting from the absorption of toxins produced by the bacilli in the intestine, typhoid fever is an intoxication produced during the struggle between the typhoid bacillus on the one hand, and the body cells and juices on the other. The typhoid bacilli produce a poison which is retained within the micro-organism, *i. e.* it is an *endotoxin,* and it is only by the death of the bacillus that it can do harm, for with the destruction or breaking down and disintegration of the bacteria the toxin is liberated, and then can exert its inimical effects on the body cells. In this respect the typhoid bacillus differs fundamentally from the organisms of diphtheria and tetanus. And in typhoid fever we do not have therefore an antitoxic immunity but one directed against the bacillus itself. In other words the juices

and cells of the body attack and kill the bacteria, and in so doing actually do something which is harmful to the body. "It is a little disconcerting to be told that the more quickly the body kills and disintegrates the bacteria the more severe may be the symptoms of the disease; this seems, however, to be a necessary assumption when all the facts are considered, though until we learn how to utilize or control a high bactericidal power of the blood the physician may not be able to gather many grains of comfort from the reflection that the blood of his sickest patient may have the greatest bactericidal power" (Barker).

On this theory let us now attempt a few inferences as to what may happen when typhoid bacilli have entered the blood of an individual—and in considering the toxic effects of any substance which acts as a poison to the tissues, we must not forget that the body possesses to a greater or less extent the power of eliminating these undesirable products by way of the bowel, the kidneys, the skin and the lungs. Those which can be gotten rid of rapidly enough will necessarily cause little disturbance. The severity of an intoxication will therefore depend upon several factors, viz: the rapidity of the intoxication, the size of the dose, the virulence of the poison and the ability of the eliminative functions to throw it off. In the case of typhoid infection let us suppose that the bacillus is neither destroyed nor eliminated, but continues to multiply. What happens? The immediate effect may be *nil;* for, according to our theory, there is no intoxication until there is bacterial destruction. It is, therefore, conceivable that the body should contain bacilli in large numbers and still show no signs of disease. The individual remains well. That this assumption is true is proven by the fact, already mentioned, that bacilli have been cultivated from the blood of persons who had been exposed to the disease, but had as yet shown no signs. This has been spoken of as the "latent" development of the bacilli, and it is what

goes on very probably for several days previous to the occurrence of a relapse as well as at the beginning of the disease.

If now we suppose that multiplication of the bacilli has been going on without symptoms, the future course will depend, first, upon the extent of this multiplication, and, secondly, upon the vigor with which the body, once aroused, attacks them. If the number of bacilli is small and the destructive agencies act firmly and sharply, we shall have as a result a short intoxication of marked intensity. With the same number of bacilli and a less concentrated attack from the forces of immunity the disease would be milder but longer. In case the number of bacilli was very large and the attack upon them was very sharp, or, if their multiplication more than kept pace with the growth of the immunity, then the increasing bacillary destruction with its resultant increasing intoxication would soon reach a point at which life would be no longer possible.

It can now be seen what we meant when it was said that a rapidly and energetically acting immunity might be actually inimical to its own proper purpose, because it set free too much intracellular poison (endotoxin) within too short a space of time. The powers of elimination are limited and are furthermore crippled by the action of the poison so that excessive toxin production means rapid accumulation within the body. On the other hand, if, with the same eliminative powers, the toxin production be spread out over a period of several weeks instead of one week, then the intoxication will be comparatively mild and not perhaps dangerous to life.

The opsonic theory, of which lately we have heard so much, teaches that in the majority of bacterial diseases the power of the blood to destroy the germs is below normal. In typhoid fever the opsonic index is above normal. Patients do not die, apparently, because this protective function is diminished, but possibly because there is too great a bactericidal power in the body. In these days when we are hoping

for such great things in the way of artificially produced immunity, typhoid fever introduces the problem not of increasing but of decreasing the physiological immunizing power of the blood. Perhaps we might account for the good effects of the cold bath in typhoid fever on this idea. It may be that the destruction of the invading germ, whether it be through bacteriolysis or phagocytosis, is accomplished largely through digestive ferments, whose action becomes much impaired in the presence of lowered temperatures. The cold bath, then, inhibits the action of the destructive ferments over the large area of the skin, thus diminishing toxin liberation; the temperature drops, the patient feels better and the tissues have a few hours' respite from hyper-intoxication. For the same reason drugs which would lower cellular activity might well be indicated. Quinine is such a drug and its use might possibly be justified by such reasoning.

Professor Vaughan, of the University of Michigan, has employed, in a series of cases of typhoid fever, a nontoxic residue of bacilli grown outside the body. By inoculating patients with these substances it appeared that the cases were not so severe, although they ran a somewhat longer course. Richardson of Boston has confirmed these observations. Probably by introducing this nontoxic residue with its specific affinity for typhoid anti-bodies the destructive action was diverted from the typhoid bacilli themselves, less endotoxin was liberated and the intoxication was therefore milder.

This picture of the essential nature of typhoid fever makes a number of phenomena often observed in the disease more readily comprehensible. Sometimes one observes a curious drop in the temperature which occurs without apparent cause under routine treatment. This might mean that a period of over-activity on the part of the tissues, is followed by a resting stage in which no bacilli are destroyed, no toxin set free,and so the temperature must fall. A chill, though rare, may represent a sudden destruction of bacilli as contrasted

with the more evenly distributed production of toxin which occurs in the majority of cases. A sudden onset is often associated with a chill, the course of such cases is commonly very severe and the mortality is high. As we have already said it seems probable that, in such instances, the protective mechanism acts too well, and that the victim is overwhelmed as a result of his own zeal. We have been in the habit of thinking of relapse as a reinfection; but it is possible that during the afebrile period the bacilli are still present, perhaps increasing in numbers in the absence of resistance, and that it is only when the body takes up the work of destruction that symptoms reappear. It may be that in this connection the hypersusceptibility produced by a primary attack has much to do with notably quick rise of temperature often seen in relapses as contrasted with the typically gradual onset of the first attack.

Lastly, we may explain the characteristic temperature curse of typical cases by employing our theory. At first there is a step-like rise. At this time more endotoxin is being set free than is eliminated; it collects in the body, the degree of intoxication receding slightly each morning, because of the natural tendency to lowered function during this part of the twenty-four hours, only to go still higher as a result of the day's increased activities; consequently the effect is cumulative.

Having reached a high level—the fastigium—the intoxication is so intense that the comparatively small amount of poison excreted has no appreciable effect on the general condition. In the latter weeks, however, when there are comparatively few bacilli left in the body, then, although the daily toxin production (liberation) is sufficient to carry the temperature up to a high figure, the degree of intoxication is really small and is more than counterbalanced by the toxin excretion. As a result the receding morning temperature is seen. Gradually the elimination exceeds the production of

poisons until finally the emunctories have entirely freed the body of them. Convalescence is then established.

In these views I make no claim to originality—they are merely the results of study of some of the more recent contributions on the ever-fruitful subject of a disease which is universal and therefore a never ending source of serious thought and study.

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THE PHYSIOLOGY OF THE HEART'S ACTION.

By Drs. Wm. S. Jordan and J. M. Lilly, Fayetteville.

Mr. President and Members of the N. C. Medical Society:

"The wolf also shall dwell with the lamb and the leopard shall lie down with the kid; and the calf and the young lion and the fatling together; and a little child shall lead them." Isaiah 11:6.

Having reviewed the most recent literature available with the purpose in mind of writing a paper on the physiology of the heart's action, that will be a resume of what scientific investigation has brought out relating to this most interesting subject, without any claim to originality, our conclusion is, in the spirit of the above quotation, to harmonize the conflicting theories relating to the production, conduction and regulation of the heart-beat and to show that they may coexist on friendly terms; namely: the neurogenic, the myogenic and the chemical; to reject none of them as playing no part and to accept neither of them as being wholly responsible; but to assign to each its proportionate part.

To intelligently discuss these forces a brief review of so much of the anatomy of the heart as pertains to the subject and of the normal cardiac cycle is deemed necessary.

The heart is divided by a horizontal septum of fibrous tissue into auricular and ventricular portions, and further, an obliquely vertical septum separates the cavity of the heart into a venous and an arterial half or apartment. This latter septum "cuts off all communication" between the halves which it separates. Demonstrating the connection between the musculature of the auricles and that of the ventricles His in 1893 described a bundle of muscle fibers which may be traced from the middle leaflet of the tricuspid valve on the right side of the inter-auricular septum just below the foramen ovale downward and forward through the atrio-ventric-

ular septum to blend with the musculature of the ventricles as far as the aortic valve. This discovery was made ten years after Gaskell and Woolridge had drawn attention to the physiology of an atrio-ventricular connection.

Equally as important as bearing upon this subject is the discovery by Keith, of London, one year ago, of a bundle of muscle fibers in the junction between the great veins and the atria of the heart, which ramify about the atria and are lost in the septum. This would suggest, as will be seen further on in this article, that these muscle fibers furnish the path of conduction, and that their existence is evidence in favor of the view that the venous portion of the heart forms the site of origin for the rhythmic impulses. Further, the presence in this bundle of muscle fibers of many ganglion cells and nerve fibers suggests that it may be the connecting link between conduction of the impulse by the muscle, and control of the impulse by the nervous system.

It was noted above that Gaskell and Woolridge drew attention to the rhythmicity of contraction of the auricles and ventricles ten years before the bundle of His was described. So, in this latter instance, an investigator named Hoffman demonstrated the rhythmicity of contraction of the great veins and suggested that they are the probable seat of origin of the heart's action two years before Keith discovered the bundle of muscle fibers spoken of above.

As regards the normal cardiac cycle we know that beginning at the mouths of the great veins the auricles simultaneously contract, constituting the auricular systole, immediately followed by the simultaneous contraction of the ventricles, constituting the ventricular systole. Now comes a short period during which the whole heart is at rest, and this constitutes the diastole. Then again the cycle begins with auricular systole, requiring for the completion of a single cycle, 8 seconds.

We are not surprised that recent investigation associating Adams-Stokes disease with lesion of the muscular bundle of

His should stimulate more detailed study of the physiology of the heart since as recently as thirty years ago physiologists, fascinated by the then new study of blood-pressure, looked for a mechanical explanation of all physiological phenomena, and being taught by Ludwig and other great teachers that vital processes were due largely to blood pressure, it naturally followed that the students of that day sought for mechanical explanation of cardiac action. Hence the myogenic theory promulgated by Gaskell in 1883, when, by the study of comparative anatomy and physiology, he showed that stimulation of the vagus in the land tortoise can not weaken the force of the ventricular contraction as it does in the frog, and further, to strengthen the myogenic theory Gaskell and Woolridge both showed that by constriction or destruction of the muscle at the atrio-ventricular junction dissociation of atrial and ventricular contraction was produced.

Prior to these investigations the prevailing idea was, that the heart-beat was of neurogenic origin, but in spite of what appeared to be overwhelming evidence in favor of the myogenic theory at the time of its assumption the neurogenic theory has not been lost sight of, and more conservative investigators, such as Wesley Mills, have substantiated their unwillingness to lay it aside.

A description of the rhythmic movement that takes place would be to state that the impulse starts at the junction of the great veins with the venous sinus, or as applied to the human heart, at the junction of the veins with the auricles, that it travels slowly over the auricles, and passes by the muscular bundle of His on to the ventricles, which contract in regular sequence. In view of the light thrown on the subject by the study of heart pathology in connection with Adams-Stokes disease the above statement with reference to the office of the muscular bundle of His is accepted without question. Sufficient reason is found for not debating this point on account of the fact that the pause of the wave of

contraction at the atrio-ventricular junction is too great to conform to nerve transmission, but does satisfy the question as to muscle transmission.

Classing with the bundle of His the muscular bundle at the mouths of the veins with the auricles and spreading over the auricles to be lost in the septum, we are justified in assuming that this furnishes the path of conduction for the impulse until it is taken up by the bundle of His, which in turn transmits it to the ventricles.

These statements pertain to the conduction of the impulse, without any reference to its origin or regulation.

Up to this time we are still in doubt as to the real origin of the heart-beat; some physiologists claiming for it a neurogenic origin, the impulse coming from the brain; some a chemical, the impulse coming from the stimulating action of the salts in the blood; and a much larger number that the heart muscle itself possesses the inherent power of originating a beat. To our minds the neurogenic theory was effectively disproven when Gaskell found that even strips of the ventricle of the tortoise if suspended in a moist chamber would contract rhythmically. This is the strongest argument in favor of the myogenic theory, and it does satisfactorily explain it, except for the consideration that must be given to the influence of those external conditions, of which the moist chamber spoken of is an example. Substantiating the importance of this point physiology teaches that a frog's heart simply excised and allowed to remain will very soon die, but if fed with a nutritive fluid will live and continue to beat for many hours. Such a nutritive fluid would be normal saline solution to which small quantities of calcium and potassium salts have been added. Without the addition of any organic material this mixture will maintain cardiac activity, demonstrating that the inorganic salts of the blood are all-sufficient to continue the impulse. Not only is this so but Howell has *originated* the impulse in the sinus, followed by the rhyth-

mical contraction of the whole heart, with just such a mixture. Consequently we are justified in the belief that the chemical theory plays an important part in the origination of the heart-beat.

Lastly, as regards the control and regulation of the heart-beat, this is known to be referable to influences from the nervous system reaching the heart through the vagi and sympathetics, the former as inhibitors, the latter as accelerators.

To recapitulate, are we not at least on conservative grounds when we assume that the heart muscle itself is capable of responding to stimuli furnished by the inorganic salts in the blood, and that the impulse once started is conducted by the muscular bundles above referred to on to the ventricles in regular cyclic movements, and that the movements are under the control and regulation of the nervous system?

In conclusion, to express the sentiment of Mills on the subject of cardiac physiology, the chemical, muscular and nervous influences are all inseparably associated in originating, conducting and controlling the movements of the heart.

A REVIEW OF SOME RECENT RESEARCH IN THE PHYSIOLOGY OF THE ALIMENTARY CANAL.

By R. H. Lafferty, M.D., Charlotte.

The recent announcement of the discovery by Zeulzer, of Berlin, of a new hormone that excites peristaltic action in the intestines incited me to give a little study to this subject and to search for some practical application.

Some little time ago the English physiologists, Bayliss and Starling, added much to the knowledge of interdependence of organs by showing that it was not by the nerves alone that the function was connected, but that there were special chemical products that exerted some regulative action. These substances, called by them hormones (from the Greek *hormao,* I excite or arouse) are produced by an organ at the beginning of its action, and are carried to the other organs by the blood, thus securing a proper synchronism of action. The idea was not original since the internal secretions may be considered as examples of the same thing with the notable exception that they are secreted continuously while the hormones are formed and discharged into the blood only when needed.

The physiologist has dreamed of the day when many of these hormones will be isolated, and when various pathological conditions will be treated by the administration of these substances directly to the blood. As yet, however, only a few have been discovered. Bayliss and Starling found one in mucosa of the duodenum which they named secretin, and which when injected into the blood stimulated the flow of the pancreatic juice. They found they could produce the well-known changes of pregnancy in the mammary gland of a virgin rabbit by injecting into the blood an extract of young fetuses, and Zeulzer with his peristaltic hormone about completes the list, although Bayliss and Starling and many

other physiologists have strong reasons to believe that there are formed many others, for example one in the mucous membrane of the mouth regulating the flow of saliva, and also starting the gastric juice, one in the stomach which stimulates the pancreatic and intestinal juices, and certain others that cause the regulation of various functions.

I may mention here that all the experimental physiologists, notable Popielsky, do not accept this theory but still contend that the action is solely reflex.

However, accepting the fact as most physiologists do, does it not open a wide field for speculation and experiment in the field of therapy for gastro-intestinal disorders? And the pertinent question has been asked; if creatinism can be cured by injection of the extract of the thyroid gland, could not certain types of gastric and intestinal indigestion be cured by the injection of the proper hormone or constipation be relieved by the injection of certain hormones? And I will leave the subject with the bare suggestion to pass to a study of the mechanics of the canal and certain application of the recent research.

Mastication in addition to softening and mixing the food with saliva has the most important function of stimulating the "appetite juice" as Pawlow has named the gastric secretion. Pawlow found, after eliminating psychic secretion, certain foods, for example extracts and meat juices, when placed in the mouth or stomach caused a secretion of this gastric juice. Certain other foods as bread or white of eggs did not have this effect, but that stimulation of the juice when this class of food was taken was practically entirely psychical.

Following innumerable experiments he gives the following practical suggestions, most of which are known:

First. For stimulating the "appetite juice" and consequently the digestion, that pleasant surroundings, palatable foods and certain sapid substances play an important part.

Second. That in the beginning of a meal, soup, and such extractives have an important function in starting the gastric secretion.

Third. That in administering bitters, for producing an appetite, they should always be given in liquid so they will reach a greater surface of the mucous membrane of the mouth, since here the stimulus arises.

In regard to the recent research in the gastric physiology the chief work is that done by Cannon on the mechanics of this organ. His work showed that in addition to the tonic action of the muscular wall of the stomach that there is a regular wave that passes through the pyloric portion of the stomach at intervals of about twenty seconds, growing more powerful as it advances, and the tonic action of the wall with an occasional weak wave carries the food from the fundus when the chyme has been discharged. He showed this pyloric peristalsis has two effects: First, that it keeps the food churned up as long as the pylorus is closed, causing it to become more fluid, more strongly acid and better mixed with the enzymes. Second, that it forces the digested food through the pylorus whenever it opens, and that the peristaltic wave becomes deeper and stronger as it approaches the pyloric opening. The increased pressure combined with the stimulating action of the strongly acid chyme on gastric side, and slightly acid or alkaline chyme on duodenal side causes a relaxation of the pylorus, and the food is passed into the duodenum. In a splendid paper about a year ago Dr. Cannon shows that this is nothing more or less than an application of Starling's "Law of Intestine," that when a stimulus is applied to a point it causes a contraction behind the point and a relaxation before, so when the acid chyme, forced against the pylorus by the wave, comes in contact with the pylorus, the relaxation takes place before the point of stimulation and the contraction behind becomes stronger, when the acid chyme reaches the other side of the pylorus the contrac-

tion is produced in the valve and the relaxation farther down in the intestine. As soon, however, as the acidity is neutralized in the duodenum the inhibition is removed from the valve and the acid chyme is again allowed to act. If then the hydrochloric acid is present in small quantities or entirely absent from the stomach the expulsion of food would be delayed, or at any rate noticeably lessened. He further showed that any injury to the gut causes a cessation of the discharge of chyle for about five hours, so that the food can not reach the injured gut, a wonderful provision of nature for it has been shown by Abbe that at the end of four hours after the repair of an injury to the gut the wound is covered by a plastic exudate, making a tight joint.

Following these observations and in consideration of the fact that the specific gravity of the digested food is very nearly the same as that of the stomach, that the stomach in different conditions changes shape, making it impossible to determine the lowest point; Dr. Cannon made the practical assertions that the idea that in gastro-enterostomy the opening should be made at the most dependent part for the purpose of drainage was erroneous, and he proceeded to prove it by a series of brilliant experiments with the following conclusions:

That when a gastro-enterostomy was made that the food continues to escape through the pylorus even when the size is reduced; that there is no such thing as a drainage gastro-enterostomy; that the stomach may be emptied through the artificial opening only when there is complete obstruction at the pylorus; that the nearer the opening is made to the pylorus the better and the more natural is the discharge of food; and finally that the physiological operation whenever possible is pyloroplasty since the rhythmic segmentation will take place of the pyloric valve when it is cut.

Another important fact demonstrated by Cannon was the influence of the chemical nature of the food on the rate of

discharge from the stomach. Of the three classes, carbohydrate, protein and fat, when fed separately, the carbohydrates, not being acted on by the gastric juice, leave most rapidly. The fats not being acted on except in a mechanical way leave more slowly and the proteins remain longer. When fed together if carbohydrates are fed first and then followed by the protein they leave with about the same speed as when fed separately. If, however, the protein is fed first the carbohydrate is retained, and if they are thoroughly mixed the rate of discharge is correspondingly decreased.

This brings us to the movements of the small intestine, the two forms of which have been designated as pendular and peristaltic.

The rhythmic or pendular motion occurs some seven to fourteen times per minute and has the triple function of mixing the foods, and thus subjecting them to the absorbent action, of replacing the pyloric valve as we have seen, and of a pumping mechanism upon the venous plexus. The movements are exaggerated when hungry and the intestines seem to be searching the remaining food for nutrient material.

The previous mentioned "Law of Intestine" proposed by Starling explains the peristaltic action, but whether the origin of the contraction is neurogenic through the plexus of Auerbach, or myogenic, stimulated mechanically or through Zeulzer's hormone, has not been definitely determined. But Cannon's work along this line has practical application in intestinal surgery since he has shown that an end to end junction of the intestine does not cause interruption of the peristaltic wave because the circular fibers are not cut while in lateral anastomosis there is always a stasis varying in extent with the length of the opening, and with the number of circular fibers cut.

Finally I would simply mention Dr. Cannon's observation that the movements of the stomach, segmentation of the small

intestine and the anti-peristaltic movement of the large intestine ceased entirely when the animal showed signs of worry, rage, or excitement, and also the observation of Bickel, of Berlin, that there was a cessation of gastric secretion under similar conditions.

By way of a brief summary I would say that I tried to show:

1. The work done in the discovery of the hormones and their actions and the possible application of these in treatment of pathological conditions.

2. The importance of mastication, not only from the well-known and recognized point of view, namely, its softening and digestive action, but also on account of its stimulation of secretions to be used later in digestion.

3. The mechanical importance of the gastric acidity and gastric motility in the expulsion of food from the stomach, and the fact that pyloroplasty is more physiological than gastro-enterostomy, and in gastro-enterostomy the opening should be made as near the pylorus as possible.

4. That the end-to-end operation for intestinal anastamosis is by far the most physiological of the types of intestinal union.

5. That in the application of dietetic measures, the administering under pleasant surroundings of palatable extractives in a liquid form starts the gastric juice, and that if this is followed by carbohydrates before the protein that the stomach empties more rapidly and gives a better opportunity for digesting the proteids.

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GASTRIC FUNCTIONS—HORMONES.

By C. N. Peeler, M.D., Charlotte.

Our knowledge of the functions of the stomach is now better than it has been at any previous time. Experiments upon animals, as well as the results of gastrectomy on patients, have shown that the stomach is not actually essential to life. However, there can be no doubt that it is not a superflous organ, but is of great use in preparing the foods so as to aid and protect the intestines from possible injury and in absorption of foods.

Its important functions are motor, secretory and absorbent. Besides these important uses other apparent ones are: (1) to act as a reservoir from which the intestines may be gradually supplied; (2) to sterilize the food to some extent; (3) to regulate the temperature of the food; (4) to aid in the stimulation of pancreatic and biliary secretions.

Now to consider these briefly:

By motor we mean the intimate admixture and the mechanical preparation of the food and its gradual removal through the pylorus into the intestines. It is now known that the cardiac 4-5 of the stomach acts as a reservoir for the food. The practical convenience of this does not need to be pointed out. This larger part of the stomach contracts upon the food and forces the liquid substance on into the pyloric portion. This portion now takes up the food and forces it on through the pylorus into the duodenum. If the food is not of sufficient fluidity the pylorus closes and the food is regurgitated back, thus a continuous churning movement is going on in this part of the stomach which brings all the food in contact with the mucous membrane. If the food is not thoroughly masticated while in the mouth, and this part of the stomach is compelled to do this extra work which produces an irritation of the mucous membranes, the

same may be a frequent cause of ulcer and carcinoma in this region of the stomach. Another function of the stomach is that of partially sterilizing the food. This is done by the antiseptic action of the hydrochloric acid of the gastric juice. This is not a powerful action but it seems that most of the commoner pathogenic organisms are destroyed by it with the exception of the tubercle bacillus.

The regulation of the temperature of the food is one of the minor functions of the stomach, but an important one. In this respect it acts as a protector of the small intestines, whose mucous membrane appears to be more sensitive to the extremes of temperature than that of the stomach. Foods as ordinarily taken may be said to vary from 5°C. to 50°C. or from 41°-122°F. It requires about ten minutes for a pint of liquid at 50 C. to be reduced to the body temperature after it has been swallowed, but much longer for a similar quantity at 5°C. to be raised to the body temperature. Hence cold foods are more apt to escape into the intestines before they are perfectly warmed, and may excite diarrhea. Food should be eaten at body temperature for then it stays the shortest time in the stomach. This should be remembered in such cases as atonic dyspepsia, in which it is important that the food should pass out of the stomach as quickly as possible, and especially the fluid constituents.

Now I do not wish to discuss at length the secretory function of the stomach. We all know that the gastric juice is formed by the stomach, that it consists of pepsin, hydrochloric acid, and rennin or the milk-curdling enzyme, that these act to some extent on the proteids and carbohydrates, digesting perhaps about 5 per cent of them. This much has been taught by physiologists almost since the time of Alexis St. Martin when Dr. Beaumont studied the function of the stomach so carefully. There is a fourth substance formed by the stomach I wish to emphasize in this paper, viz: Hormone or, may we call it, an internal secretion. Dorland tells

us that a hormone is a chemical substance formed by an organ, which is taken up by the blood and carried by it to another organ which greatly excites the latter's secretory function. It is interesting to notice how the gastric juice is affected by the salivary glands, and in a similar manner the pancreatic and biliary secretions by the stomach. Dr. Aaron, Professor Stomach Diseases, Detroit Post-graduate School, says that there can be no doubt that the salivary glands have an internal secretion which is taken up by the blood, and which induces the secretion of hydrochloric acid. Hemmeter has made an extract of the salivary glands, and by introducing it intravenously has produced the secretion of hydrochloric acid in the stomach of a dog, where it was previously lacking. Even before the food actually reaches the stomach the highly acid gastric juice is secreted and is ready to act upon the bolus. In like manner it seems there is a substance formed in the stomach which is taken up by the circulation and excites the secretion of the pancreas, liver and intestines. Frouin removed the stomach from a number of animals to exactly determine the influence on other organs of this internal secretion. The animals lived for several months and in one instance for five years. There was great distension of the abdomen, and at the autopsies the liver was more or less congested and sometimes hypertrophied. After studying the question of secretion very carefully he concluded that the stomach formed a substance which he called secretin, and that it was absorbed by the blood and acted on other organs. He states that soaps when passed into the duodenum have a similar action except to a less degree.

It is important for the practitioner to notice the interrelation of the digestive functions. We may say that the digestive secretion, viz: salivary, gastric, pancreatic and biliary are stimulated by psychic influence, by direct mechanical stimulus occasioned by the food and by the specific action of some chemical substance formed in the organ and

carried to the other organs by the blood. Again the interrelation is demonstrated to us in that the mental state and the sense of taste in some unknown way affect the digestion. Thus worry induces leanness, and happiness favors the opposite condition, independently of the amount of food taken. The savor of meats causes an increased flow of saliva and likewise an increase of gastric juice. The opening or closure of the pyloric valve is controlled by the acid or alkaline substance found respectively in the pylorus or duodenum. The presence of acid, gastric juice, in the duodenum leads through reflexes arising in the latter to the closure of the valve preventing temporarily a further escape of gastric contents. When this gastric juice in the duodenum is neutralized the pylorus again opens and the rhythmic movements of the stomach expels a further portion of the acid, gastric contents, which again causes a closure of the valve. This reciprocal action demonstrates the important relation of one part of the digestive apparatus with another. In order that these complicated pieces of humanity—our bodies—may be in the best running condition, it is important that each part work in harmony with another, for a chain is only as strong as its weakest link. In order that the stomach may do the best work it must use the salivary glands, likewise the stomach is very beneficial in the proper functionating of the pancreas, liver and intestines both as to their external and internal secretions or hormones. In concluding this paper may I use the language of Dr. Adami, who says that the various forms of indigestion, dyspepsia, absence of pancreatic juice, of biliary excretion, and of indigestion in the lower portion of the small intestines, may in the absence of gross obstruction and disturbance, be due to imperfect development of one or other secretion.

A PLEA FOR THE STATE TO EDUCATE THE PUBLIC ON INFECTIOUS DISEASES.

By W. P. Holt, M.D., Duke.

In making a plea to the State for the education of the public on infectious diseases, we first wish to show the need for such education and then to suggest some of the best ways for that work to be done.

The general practitioner who has had for his clientele, the illiterate (which class makes up a large proportion of the State's inhabitants), needs no argument to convince him that one of the most important things that the State can do to enhance the work of preventive medicine is to educate the public on the subject of communicable diseases, because he has no greater barrier to the success of his work than the ignorance of the public concerning infectious diseases. Take for example a few of the most common infectious diseases, typhoid fever, tuberculosis, scarlet fever, smallpox, diphtheria, hook-worm disease, malaria, these are certainly diseases upon which the public needs enlightenment. We could go further and name other infectious diseases which are common in our midst, but the above are some of the most common and will give us much work to do to so educate the laity that they will realize the gravity of each disease and will help the physicians in their efforts to prevent the spread of these diseases, instead of oftentimes hindering their work. The cause of carelessness of the public concerning these diseases is the gross ignorance on the part of the people concerning such diseases, and of the means to prevent their spread. Let us take typhoid fever as a common example. I know of a case that illustrates the ignorance of the public concerning the mode of infection so well that I will relate it. A few years ago, in the early summer, typhoid fever made its appearance in a small manufacturing village of about two

hundred inhabitants. The village was located in the central part of the State. The water supply was obtained from two open wells. On the first appearance of the fever an analysis of the water was made by the State Biologist, who found that it contained typhoid germs in great numbers. This was reported, the wells marked "poison" and were nailed up. Despite this the people refused to believe it and tore open the wells at night and continued the use of the water until lime was thrown into the wells in sufficient quantity to prevent the water being used. This, however, was not until fifty-three cases of typhoid occurred, with several deaths. This epidemic could have been stopped before one-third of these cases were contracted, but for the refusal of the people to listen to the argument that the water was poison. To these people the macroscopic appearance of the water was as it had always been. The water was cold, therefore they could see no reason why they should not use it. The uneducated mind could not take in the fact that this water was dangerous and causing the local epidemic that was alarming the country around.

The carelessness in the management of typhoid fever in some instances is allarming. Flies are allowed to go from the patient and even from the fæces of the patient to food in an adjoining room, without any thought of danger on the part of the family. This same ignorance of the communicable diseases causes the spread of them, when if the public was taught more about them we would often have the isolated case instead of the local epidemic.

Hook-worm disease, so common in the rural districts of the sandy sections, does not disturb the minds of the people, and it is hard to convince the parents of the danger in the bleached cheek of the child that is going steadily on to its grave. Often some intercurrent malady will get the credit in the death certificate due to hook-worm disease, while the soil pollution with increased infection goes steadily on. In re-

gard to this disease I have known parents to refuse the offer of the family physician to treat the children free of charge if they would buy the needed medicine.

Carelessness, you all know, comes from ignorance of the disease and its danger.

In the management of scarlet fever, smallpox and diphtheria among the class that does not know of the danger and awful sequelæ the doctor's greatest trouble and anxiety comes from the effort to prevent their spread, caused by the careless management by the family and friends. The sick child with scarlet fever or diphtheria will be visited by the neighbors, bringing their children, and all the warning from the attending physician is an evidence in the minds of the family that he is "Scarey" or "Too Particular." Gentlemen, it is unnatural for people to subject their children to danger as they so often do, and the cause is not knowing the ways of avoiding such danger and not knowing how easily these communicable diseases can be contracted. I could cite case after case of the gross ignorance of the public in regard to infectious diseases, which have caused death and suffering to numbers, while if the public had only been taught a little about these diseases it would have been so easy to have prevented them. I am sure such cases will occur to you all where ignorance of these diseases has caused havoc in families. It is a plain fact, we can not lessen the number of cases of the infectious diseases in North Carolina (having instead of the local epidemic the isolated case) until we teach the people something of these diseases. When this is done we can get cooperation in the work to stop the spread of such diseases. I am sure that I can call on the county and city health officers here as witnesses to the fact that ignorance of the public concerning infectious diseases is harder to fight than the disease itself.

I do not believe the public's carelessness and oftentimes opposition to the work of the physician in trying to prevent the spread of the disease comes from a desire to oppose the

physician or the law, but comes rather from erroneous ideas concerning the disease. Contrast, if you will, the difference in the management of one of the infectious diseases in the home of an intelligent layman, who has kept up with the progress of medicine as well as a layman can, with the management of a case in the home of one entirely ignorant of the disease. Such comparison will at once give you an idea of what educating the public will mean to the individual physician, and to the future progress of preventive medicine. Educate the public on communicable diseases and make helpers out of the people to fight disease instead of being joint foes with the disease.

Now as to some of the ways to teach the public:

The first, and to my mind the best way (*as pointed out in a paper by Dr. McBrayer) is to teach children in public schools Elementary Physiology and Hygiene, such treatise containing a chapter on each of the common infectious diseases. Through this medium we will at once reach the future citizenship of the State, and also reach through the teaching of these children parents that never read a paper or hear a public lecture. After serious consideration I believe that this is the best way to teach the public. However, there are other ways by which the public can be taught, for instance, hand in hand with this teaching in the public schools the public can be taught by the systematic distribution of pamphlets explaining the modes of infection and management of a case by the family, how to prevent infection, and also by public lectures when practicable. I would also urge the individual effort of every physician in his own practice to teach his people concerning these diseases.

By teaching the public—first through the medium of public schools and lectures and distribution of literature on the different infectious diseases, we will gradually bring about correct ideas in the minds of the people concerning the communicable diseases, and also better sanitation in the homes,

* Charlotte, before Anti-Tubercular Society.

lessen the number of epidemics, and by so doing from an economic standpoint save for the State much expense and to the public much suffering and innumerable deaths.

To those who may say: "A little learning is dangerous," I will say that the public have their erroneous ideas of these diseases. Why not teach them correct ideas? And by so doing make a wonderful stride for the future progress of preventive medicine.

THE STATE'S DUTY IN THE FIGHT AGAINST INFECTIOUS AND CONTAGIOUS DISEASES.

By J. W. Halford, M.D., Chalybeate Springs.

In the course of his presidential address at the 54th annual meeting of the North Carolina Medical Society, Dr. Booth said: "He (the physician) no longer confines himself to the combat of a single case of sickness at the bedside; it is his duty to study its cause, trace it to its source, and stamp it out of existence. To do this it is often necessary to call upon State and municipal authorities for aid. Those in power are, as a rule, either ignorant or indifferent." The closing sentence of this statement of facts has been most forcibly impressed upon me during a service of nearly three years as county superintendent of health. However, the indifference is not confined to the "authorities," for a great many physicians refuse to cooperate with the local health officer in his efforts at preventive medicine.

There is a remedy for this indifference, or ignorance, and the remedy is with our lawmakers. They must, by statutory enactment, provide the agent or agency to carry out Dr. Booth's demand that we trace disease to its source, for the great majority of physicians have not the time, and a still smaller number have the disposition, to trace a given disease to its source. They usually content themselves with an effort at suppression of the case presented. This agent or agency should be a law requiring physicians to immediately report every case of infectious or contagious disease to the county superintendent of health, as is done at present in the case of scarlatina, rubeola, diphtheria and a few other diseases. Few physicians report new cases of tuberculosis, and none, so far as I am informed, report gonorrhœa or syphilis. This law should provide that each county shall employ a competent physician as superintendent of health, who must devote his

entire time to the work of his office. In order to remove this office from partisan politics the respective county medical society should nominate and the governor appoint.

It should be the duty of our lawmakers, of the State, to require the county superintendent of health to: First, keep a record of and visit every case of tuberculosis, give general direction as to hygiene and proper living, the manner in which the disease is transmitted, and give gratuitous treatment to the indigent. This would be the first step toward the county sanitarium for the treatment of tuberculosis. Secondly, this law should require the respective counties to pay a sufficient salary to attract men of ability.

Another class of disease which the State does not require physicians to report, and which, in the writer's opinion, is as great a menace to the public health as tuberculosis, is venereal diseases.

If any disease has entailed greater suffering and blighted more lives than syphilis it is gonorrhœa. Seek the gynecologist for information regarding the barren and crippled women as a result of this loathsome disease. The neurologists and keepers of insane asylums write the final history of the syphilitic. Still the State makes no effort at suppression of these diseases. The State, by mandatory laws, attempts to protect the child from the exanthemata, but the law is yet to be written which would make an effort to protect the innocent babe from the dire effects of inherited syphilis. It is the State's duty to require every physician who gives aid to this class of sufferers to report the matter to the county superintendent of health, together with the name of the author of the trouble. A list of these unfortunates should be furnished the Register of Deeds, or other proper county officer, and a marriage license be denied all who can not furnish a certificate from a reputable physician showing he had had proper treatment and was cured. All cases of a public nature should be isolated or quarantined during the

active stage and treated at the public expense. A law regulating the social evil will come in the remote future.

Hydrophobia is a disgrace to our civilization, and still during the past year the Hygienic Laboratory at Raleigh has given prophylactic treatment to about 100 exposed persons. A tax on dogs would help to reduce this disease, but a law requiring owners to muzzle dogs would entirely do away with this dangerous malady.

The policy of employing men to carry on the fight against the class of disease here mentioned has received the endorsement of some of our most gifted minds. In 1906 in his presidential address at a meeting of the "Conference of the State and Provincial Boards of Health of North America," Dr. R. H. Lewis advocated the employment of teachers to travel the State lecturing, scattering literature, and organizing societies to fight tuberculosis, which he considers the greatest problem confronting the sanitarian. Are not physicians the most competent teachers, and why not entrust this work to one man in each county—the superintendent of health?

In the course of a message to the General Assembly of New York, Governor Hughes, in speaking of tuberculosis, said: "Provision should be made for notification and complete registration of cases, and for the dissemination of necessary information. There should be suitable appropriations made to permit of systematic effort under the direction of the commissioner of health."

If our lawmakers were broad-gauged men like Doctors Booth and Lewis and Governor Hughes, the last of the present generation would witness the final extinction of tuberculosis. All the laws of the land affecting the public health are the result of the unselfish, self-sacrificing effort of the medical profession, and this profession must continue to direct the lawmakers.

THE ECONOMIC IMPORTANCE OF DISEASE PREVENTION.

By W. J. McAnally, M.D., High Point.

Mr. President and Members of the North Carolina Medical Society: There are always presented at these meetings many excellent, scientific papers upon the diagnosis, pathology and treatment of the diseases and accidents which afflict mankind, and of course this is as it ought to be, for the chief work of the members of this Society is that of the clinician who directs his efforts toward the relief of abnormal conditions which have previously occurred. And be it remembered with enduring honor to the medical man that he has always carried on the fight against disease and accident and has conscientiously sought to prevent them though he has often been almost alone in this noble work, for the State, the public school authorities, the press and many of the municipalities have been slow to appreciate the vast importance of this matter of prevention, yet the medical profession has stuck to this promising field of human endeavor with persistent, altruistic devotion.

For the good of the people, we will forever cry, not "Carthago delenda est," but "morbas delendus est" shall be the slogan by which we will arouse the powers that be and create a public sentiment that will compel the passage of measures looking to the prevention of disease and the preservation of the health of our people.

The economic phase of this question of disease prevention is of such vast importance that the United States Secretary of War, in an address before the International Congress on Tuberculosis, at Washington, compared the cost of tuberculosis to the people of the United States with the expense of maintaining our military and naval establishments, and stated that this one disease alone cost us more than our army

and navy. When it is remembered that tuberculosis is only one of the many infectious and preventable diseases from which our people needlessly suffer and die, then we may with the aid of the Secretary of War's estimate gain some idea of the enormous, prodigious drain these preventable diseases make annually upon our resources in the line of material things alone, without mentioning the frightful, awful loss of human life.

In the name of civilization I want to ask how many years it will be before the States will earnestly take up the matter of instructing their citizens in practical useful things such as disease prevention, the preservation of their bodies and endeavor to increase their earning capacity by giving them some kind of manual training.

As the protection of life and property was the primary cause which led to the creation of States and the organization of government among civilized people it is, therefore, proper that we may not only suggest that the State undertake the saving of our people and the preservation of their resources from loss by preventable diseases. But this question is so very important and pertinent that we may with justice demand that the States shall take up this vast work. Such men as Robert Koch, who have made the question of public health the study of a lifetime, say that if the people are ever to have any adequate conception of the nature of disease and the correct means of prevention the State must instruct them. The ways in which this may be done are many. There are the public schools of our State, which may do a great work if they had a practical text-book on hygiene and disease prevention which was not encumbered with so much physiology and anatomy that the average pupil in the public schools could easily get the wheat without having to work over so much chaff. Then the State might employ a man or men to travel up and down the commonwealth, giving lectures in school buildings, churches, theaters, and other

auditoriums, and these lectures might be accompanied with lantern slide demonstrations. No one may estimate the educational value and the good resulting from these methods.

The many thousands of valuable lives which would be saved to the State annually by teaching our people how to avoid tuberculosis, typhoid, hook-worm disease, and other preventable diseases would increase the earning and producing capacity of our citizens so much that it would revolutionize the industrial life of our State. Then who would dare estimate the joy and gladness in the homes of our people where the death angel had been turned away?

THE PRINCIPAL PUBLIC HEALTH PROBLEMS IN NORTH CAROLINA.

By Thomas A. Mann, M.D., Durham.

The selection of this subject for discussion to-day is simply to call attention to some of the problems that exist within our borders and to urge you to exert your influence for a betterment of conditions. It is useless to deny that we are behind our northern sisters in matters of sanitation and public health. I wish to make an appeal to the medical men of North Carolina. I feel that there is an unawakened energy among our profession which if properly stimulated will respond with a positive result that will put our State in the front rank of commonwealths that are trying to solve this great problem of public health. The world is beginning to appreciate the close relation between material prosperity and a low mortality rate. It is also beginning to appreciate the fact that a low mortality can be better brought about by preventive rather than by curative methods. It is to the great discredit of our medical colleges of to-day that they do not pay more attention to this great branch of preventive medicine, for truly it belongs to medical science. What is the study of medicine for? Is it not to save lives and lessen human suffering? It seems to me that we are neglecting a very important attribute to the happiness of man, and I sincerely hope that the next generation will see our medical colleges paying more attention to this neglected but most important subject.

Let us take up briefly some of the more important problems that we must deal with in North Carolina:

1. Vital Statistics.
2. The Tuberculosis Problem.
3. The Milk Problem.
4. Sanitary Disposal of Waste.

5. Malaria and Hook-worms.

Vital Statistics. One of the first questions to be considered is the one of vital statistics. The importance of accurate records of births and deaths can not be too forcibly emphasized. To quote from the bulletin of Census Bureau, "Reasons demanding the registration of births and deaths," stated in increasing order of importance may be given as follows:

1. Knowledge of the movement of populations (demographic uses).

2. Protection of the lives and health of the people (sanitary uses).

3. Protection of the rights of the individual and of the community (legal uses).

The propriety of this order may be questioned because, in this country especially, the sanitary uses of vital statistics have quite overshadowed their importance as legal records. Modern public health administration is intimately dependent upon reliable mortality statistics, and registration offices are usually under the direction of State or city boards of health. Modern sanitation itself is a child of vital statistics, and the beginning of national registration of births and deaths in England in 1836 marked the commencement of the "sanitary era" in which we live and which is yearly witnessing greater triumphs in the conquest of disease.

Dr. William Ogle, in charge of the vital statistics of the General Register Office of England and Wales, in his testimony before the Select Committee of the House of Commons on Death Certification (1893) gave the following reasons on the uses of death certificates: "First of all there are the legal uses, where the proof of death is required, such as the succession of property, payment of insurance moneys after death, and so forth. Secondly, there is the prevention of or interference, at any rate, with murder or foul play generally; and thirdly, the provision of trustworthy data for the elaboration of statistics concerning health, disease and mortality."

My purpose in this paper is to speak only of the sanitary and public health uses of statistics. For this reason alone it behooves every physician who is interested in the welfare of the people to exert not a passive but an active, energetic influence to bring about the keeping of accurate records of births and deaths in his own community. Though in my home town we have been keeping a record of deaths for some years, it was not until January, 1908, that we began to record births. Already within that short time a condition has been brought to light which before was not noticed, and this is the great number of illegitimate births among the negro race. The records also show that the great majority of the stillbirths are among unmarried negroes who are attended by ignorant midwives. In Durham, with the registration of births, we also require a registration of midwives. Most of these are unlettered and are ignorant of the laws of hygiene and cleanliness that should be observed in cases of obstetrics. It is our purpose to gradually eliminate the ignorant midwife and allow only those women to act as such who can stand an examination on the rules of cleanliness that should be observed, and who have some idea of the gross anatomy of the genital tract. To me it seems a disgrace that we should let conditions as these go unnoticed. In Durham they are no worse than in other towns of this State, or probably in the rural districts. They are simply not noticed because accurate records are not kept. Our churches and our people spend much money on foreign missions to teach and uplift heathen nations. Though I do not mean to say one word against foreign missions I do say we would better pay more attention to heathenish and savage customs that exist within our own midst, and try to rectify them.

The fight against tuberculosis in North Carolina has barely begun. It is true that we have private institutions here in our State that compare favorably with any in this country. We have here in Asheville men who have done noble work in this great fight. Tuberculosis as a social prob-

lem, however, has barely been touched. The ignorance regarding the nature of this great plague that exists among the great masses of people throughout our State is appalling. Christian nations think that they must go into all the world and preach the Gospel; by divine command they must spread light. A greater responsibility of the wise over the ignorant. This same responsibility rests on those who have knowledge when it comes to the protection of humanity against disease. It is a serious question, this saving of the lives of humanity. We must be moved by reason and not wait to be moved altogether by sentiment, for if we do hundreds upon hundreds will be sacrificed needlessly. It is a hard undertaking to change a deep-rooted public opinion which has been brought down and replanted from generation to generation, especially is it hard to change such an opinion when deep rooted in the minds of the ignorant. It has been thus with tuberculosis. Until recently from time immemorial it had been taught that consumption was a disease transmitted by inheritance, and the people had learned to look upon it as a divine visitation. Becoming resigned to its ravages, it seems, spoke more strongly for Christian faith. We now know, however, that the doctrine of inheritance was a false doctrine, and the time has come when we must not suffer on account of it. In the light of new knowledge a way for safety and self-preservation has been opened up to us. We will not only be unjust to ourselves and to our families but to society as a whole if we do not profit by this new knowledge and help to teach the ignorant masses what possibilities of protection await them. We should teach the people that with an understanding of the nature of tuberculosis it is not a dangerous disease and that its prevention is simple, since it depends on an intelligent obedience to the laws of nature. Some people can not realize that medical doctrines can be completely changed in a few years, and the discovery of new truths instead of strengthening their faith in medical science seems

to weaken it. The people should remember that the discovery of great truths in other sciences has revolutionized the earth. At one time people were taught that the earth was flat. I doubt not that after Magellan sailed around the world and proved the claims of the then new theory that still many ignorant people clung to the overthrown doctrine of a flat world. And so in medicine to-day, many people cling with a blind unreasoning faith to the idea that tuberculosis is not caught but inherited. I have been made to shudder by the statement, "There is no need to do anything, for if God wishes you to have it He will give it to you." It would be just as sensible to refuse to get off a railroad track before a moving train. The only difference is that in one instance the danger is visible, to the naked eye, in the other it is visible only under the microscope and consequently we must abide by the warning of those who know.

I am glad to say that in some communities a discourse on the infectious nature of tuberculosis would not be needed; but in North Carolina it is needed, for a great majority of the people still believe it is carried only by inheritance. It is our duty as physicians to help correct this false idea of inheritance of tuberculosis, for if the people once realize as a whole that the danger is in the patient's discharges, then the law of self-preservation will make them obey the laws for protection. The people will not knowingly subject their loved ones to a danger when they once realize that the danger is real. The carelessness that we meet daily is due to ignorance and not maliciousness. To teach to the citizens of North Carolina the nature of this dread disease is no easy task. It will take time, it will take the best energies of medical men and of those closely allied to them—trained nurses. While we are doing this, however, there is one thing absolutely necessary; and that is, we must care for the unfortunate sufferers. There is no way to estimate the number of tubercular poor in North Carolina, but I venture to say

there is not a medical man in this audience who has not more than once wished for a place to which he could send an unfortunate patient. Some of you say, we have a State Sanitarium. Pray tell me what good it does the poor of our State when they can not gain admission? I have written in behalf of a poor factory worker and was informed that he must pay one dollar per day. Thus he was left to wander from place to place, a danger to all his people. He could not live in one home because he had no money. So he was forced to go from one mill town to another and spend short periods with his different cousins. There may be many cases like this. We do know there are many cases that are dangerous in their homes. We can not make much headway against this disease until we can get a place to help these sufferers. We can not get this place until the medical men of our State exert greater efforts toward this end.

The Milk Problem. One of the most important problems, and one that is sadly neglected in North Carolina, is the milk problem. We have only to look at the records of some of the northern and western States to know this. Rochester, New York, has lowered more than half its mortality record among children within the last ten years. It has done this by purifying its milk supply. It is a lamentable fact that many mothers are not able to nurse their infants. Experience has taught that properly modified cow's milk is the best substitute. It has also taught that unless this milk is pure and produced under the most careful sanitary precautions that many children will be sacrificed. Though there may be a few model dairies in North Carolina, and though in country districts a few families may have good milk produced under modern conditions, the great majority get milk produced under conditions similar to the ones that existed before the Civil War. It is somebody's duty to correct this. It is the duty of the medical profession to do much of it in rural districts. It is the duty of the health authorities in

municipalities to establish a rigid control over the milk supplied to their respective districts. We can not expect the mill operative who works from early morn till night to look out for himself in matters of this kind. It will be some years before the standard of intelligence among the masses of our factory operatives will be high enough for them to demand good milk. It will be some time before they as a whole realize that the deaths of their infants in the summer time are due to bad food and bad feeding. We know, however, that many lives can be saved among these people, and it is our duty to do all we can to help them. Let us teach them the importance of healthy cows and of good food and water for them; clean stables and of clean milk containers. Let them know how important it is to keep milk cooled below 50 F. But in the meantime if milk is supplied by the dairyman let us see to it that he observes all the laws for safety.

Another important question that affects both country and town, is the disposal of waste products from human and animal sources. The question of refuse disposal is somewhat different as it affects crowded communities or rural districts. Waste and garbage disposal in the country is a very simple question. The pig pen and the field answer every purpose. In crowded communities, however, waste and garbage disposal is a more serious question. The crematory and reduction plant must be utilized. These have about passed the experimental stage and plants can now be built to suit the size of any community. It is said, however, that for small cities and towns crematories are more practicable. Perhaps the most serious question is the one of manure disposal from stables and of human waste from dry closets. Manure disposal in both country and town has been neglected in this State. People talk of screening their houses for protection from flies. Why not go to the fountain source and prevent flies? This can be done if people clean their stables at least once a week and screen the manure piles. Flies breed mostly

in decaying organic matter and in manure. It takes about two weeks for them to hatch through the various stages. You can thus see the wisdom in weekly cleaning. Throughout the great rural sections of North Carolina very little attention is paid to the care of manure and to the prevention of flies. Let the farmer be taught that he can save both more manure and consequently more money by a better care of his manure. Not only this, but he may save sickness in his family, for flies are great carriers of disease. There is no doubt that most of the typhoid fever in our State is either directly or indirectly due to flies. This brings us to the question of open dry closets. In the disposal of human excreta the water carriage system is ideal. In municipalities that have this system every home that can be connected should be required by law to do so. When this is not possible a regulation fly-proof closet should be required. The regulations required in Montclair, New Jersey, or Warren, Ohio, should be enforced. In the country every householder should be taught the importance of protecting his dry closet from flies and of cleaning it once a week. If every dry closet in North Carolina could be cared for as it should be and could be made fly-proof, I venture to say that in five years we would not have a hundred cases of typhoid fever in a period of twelve months. Not only would typhoid fever be prevented, but hook-worms would largely be done away with. Calculate, if you please, the cost of doing this and then calculate the cost of typhoid fever and hook-worms. You can at once imagine what a great saving it would make for our people, not only from a standpoint of health and happiness, but from a standpoint of money.

Malarial fever is a question that concerns mostly the eastern portion of our State. The eleventh biennial report shows that most of the malaria reported was from eastern counties. To prevent this will require the expenditure of much money for drainage. The bills passed in the last Legislature affect-

ing drainage of certain portions of the State will do much toward bettering conditions. It is now said that the downfall of the Grecian and Roman Empires was due to malaria. It sapped the vitality from the people and caused national decay. There is no telling how much good would result if we could rid our State from this trouble to-day. Let us study the example of Panama in its fight against the mosquito and profit by its experience.

Now all of these questions are easy to talk about. We can lay down precepts, but if we do not actively and energetically use our influence our talking will not be very effective. It is true that in the nineteenth century great progress in the advancement of man was made. The nations of the world have been closely united and communication between all civilized countries is possible within a few hours. The manners and customs of the world are gradually becoming more alike. The tendency toward cosmopolitanism is more and more marked. Men are to-day in a better position to get the best out of the world than ever before. Individuals and communities of individuals are in a better position to profit by the successes and failures of their fellow-man. But it seems that all progress is achieved through difficulties. Nothing good or great for the world is done without great opposition. So great is this fight against truth and right that the poet has sung,

> "Truth forever on the scaffold,
> Wrong forever on the throne;
> Yet that scaffold sways the future,
> And beyond the dim unknown,
> Standeth God within the shadow,
> Keeping watch above his own."

This resistance to advancement has been marked through the ages. Christ himself was crucified, and many men have been martyred for the right. Galileo was scoffed at and Columbus persecuted and derided. Edison was called a crank. The Wright brothers, our latest heroes, were just a

few years ago pronounced crazy. The same resistance that has met progress along other lines has been as much if not more marked in discoveries and advances in questions of personal health. Medical men of all ages who have been the discoverers and the inventors of useful procedures, have met the jealous opposition of their fellows and the prejudice of the world. Even to this day there is a feeling against vaccination and in some cases by physicians themselves. Diphtheria antitoxin, to my mind the highest example of success in medical science, is scoffed at by medical men perhaps in your own neighborhood. We should endeavor to counteract all this opposition. Progress and development along all lines of preventive medicine should be stimulated and encouraged by us. It seems to me that one of the greatest blessings to man would be an ideal development of preventive medicine. This would come nearer giving man the allotted seventy years. It would come nearer giving that seventy years a happy existence. That we are approaching this condition is shown by the average length of life. In the seventeenth century the average was only eighteen years. In the beginning of the twentieth century it was thirty-eight. It is now more than that, but we should not be content. Let us press on with a restless spirit of advancement and progress until we reach that ideal state when men shall live their allotted time of three score and ten.

SHOCK.

By J. Vance McGougan, M.D., Fayetteville.

There are few problems of greater importance to the railroad surgeon than "shock." In railroad accidents, where we have to deal with burns, fractures, dislocations, lacerated wounds, etc., we have to face frequently that vital depression known as "shock." Were I to describe in my own words the injured patient lying on a railroad track, or in the cars, prostrated, pallid with feeble, thready pulse and sighing respiration, I should only reproduce for you a picture you have often seen in railroad injuries. Vital depression due to a violent impression on the nervous system. This is a critical moment and you must take advantage of the opportunity which it brings, for you have a task before you which is imperative and calls for intelligent action and immediate energy. You must work now or you will be too late. If you fail to take advantage of this critical moment the chances of life will lessen as the moments fly.

In many cases, in the face before you, you can see the icy chill clutching at his very heart. Meet the necessity of each case and patiently wait. Right here is the danger point for many of us from our intensity of desire to help, do too much, but you must not stop to think of the helplessness of your task or of the utter impossibilities of it, but work and keep on, for while you can see the intensity, you can not foretell the duration. Unless there is positive evidence that a large blood vessel has been severed and hemorrhage has been great, or great injury has been done to the nervous centers, there is always a "fighting chance" and even in extreme cases, we should remember that the vital powers and the powers of resistance or endurance of some are great, and our efforts may be rewarded by seeing our patient come again into life from the very jaws of death. Recent physiological research has

proven that we can no longer rely on former methods or treatment.

Few men are pioneers in medicine and surgery and it would be presumptuous in me to give an individual opinion of my own knowledge when the great masters have spoken. It is my purpose to pass in review and give you the principal facts, the established theories and methods of the best teachers of the present day.

The average surgeon is too over-burdened with the daily work for a physiological investigation, but we can and must keep abreast of the times and follow the masters who in recent years have given us a clearer knowledge of this important subject. Experimental laboratory work is a great aid to the profession, and we should not belittle its usefulness, but the knowledge gained therefrom should be weighed and compared with that given in practical experience with human beings. Experience and common sense are the important safeguards in medicine and surgery.

There are a number of forms of shock. "Shock" from the effect of certain depressing conditions on the nervous system. Syncope only may result and the patient be slightly dazed, with consciousness in abeyance or there may be complete unconsciousness for hours or days, which has been aptly called hypnoid on account of the resemblance to the hypnotic state. Amnesia for events preceding or following an injury is at times manifest. For instance, with a patient of my own, a young man, was under my care for four days, unconscious, and when the mind began to clear up he had no knowledge of his condition and knew nothing of the cause of the injury; did not even remember where he was when the injury took place. The truth of the matter was he was investigating some cotton mill machinery and a clasp from the belt flew off and struck him on the side of the head. He was thrown violently to the floor. I found him unconscious with a slight lacerated wound on the side of his head; no depression of

bone, and he remained entirely unconscious for four days, and partially so for six or eight more, and slowly recovered. This has been six or eight years ago and he has never had any trouble since.

The differential diagnosis between concussion and surgical shock is at times very difficult and we can only arrive at a different conclusion after we have studied the case throughout the whole course, through reaction into convalescence, which I did in this particular case.

Hysterical phenomena may be produced by subconscious impression during the hypnoid state and in some cases there is a latent interval for hours or days and then the patient goes all to pieces and serious symptoms quickly or slowly intervene. Whether this is due to the injury or to the memory of the injury which he now recalls, is a question.

Analogous to surgical shock there may supervene a state of acute or chronic prostration with nausea, vomiting, pallor, great weakness, sleeplessness, restlessness and delirium due to the profound involvement of the processes of organic and vegetative life.

Sensory and motor symptoms may exist from the beginning or may be subsequently added. I remember a case which was reported by a surgeon in one of the meetings of the Association of the A. C. L. Surgeons, a few years ago, which went something like this:

"In a case where a man was crossing the railroad near the station the train ran into the horse and buggy, killing the horse and demolishing the buggy entirely. The man was caught by the pilot and carried at least two hundred yards and released from this position apparently uninjured save for a slight penetrating wound on the hip about one and a half inches deep, which in itself seemed trivial. No other injuries were visible and he was suffering very little pain. The train causing the injury was going south and brought him to this surgeon's office at the next station, where he was

placed on a stretcher and transferred as gently as possible to the northbound train which was then near the station and carried back to his home at the next station where he was hurt, apparently without any discomfort. In about an hour, shock symptoms became manifest, he became pale, pulse slow and weak, skin cold and clammy, respiration sighing, and in spite of all treatment life went out like a flickering taper. In about twelve hours from the time of the accident life was extinct. The surgeon reported that this man seemed to have a wonderful vitality at first, but at an unexpected moment he went down, probably on account of a neuropathic basis superadding disturbances of the trophic nervous centers. The coexistence of internal hemorrhage is to be considered in severe cases at all times.

In a case that I am familiar with, that case under my observation a few days ago, is as follows:

A man was standing on the front car directing the roadbed force in loading his train with gravel. A steam shovel was operated by a wire rope, the rope broke and flew back, striking the man over his stomach. He immediately had severe pains, and all of the symptoms of "shock." He was seen by a local physician at once, morphia and whiskey administered freely for the pain. Some six or eight hours later this man was brought to the Highsmith hospital and placed under our care. He showed no symptoms of reviving, was in profound shock from the start.

He was nauseated, vomiting and was unable to retain anything. This man died in about twenty-four hours after the accident. We held a post-mortem and three or four quarts of blood were found in his abdominal cavity and a rupture extending entirely through his liver.

Secondary or indirect results of accidents known as substitutional symptoms may complicate the case or may come on afterwards. These have been classified and described graphically by Warren and Gould, and I should not consider the predisposing causes the neuropathic predisposition or

concomitance. The best authorities agree that the accident is the exciting cause, and predisposition the real cause of most post-traumatic neurosis.

The prognosis depends upon the vital force and whether or not there is a neurotic basis or complication. Wherever the temperature remains long below normal you must be in readiness for the drama of death. You may have shock without pain or hemorrhage, as far as that is concerned. As to the treatment of shock there are many methods advocated by the best authorities. However, there is always a middle ground and we must not let the pendulum swing too far in either direction, and while we must accept that which is new, if true we must not place too much reliance on a certain set of drugs to the exclusion of other measures.

It should be our rule in treating emergency cases to consider each case as a unit, and give only such remedies as certain indications may require in the individual case. And just here quoting from Dr. Herrick, of Troy, N. Y., will say "When the operation is forced, handle the tissues in such a way that they are subjected to the least manipulation possible. The degree of narcosis should not be profound as the effect of narcosis is most injurious. In certain operations on the abdomen the operator and his anesthetizer should work hand and glove together.

Attend first to the general condition of the patient and then to local injuries: Great care should be taken in handling the tissues or exposing the bowels. When operation is indicated, operate with rapidity, keep the head low. There are some things in medicine that we must accept on faith.

Cataphoresis of the spinal cord and nerve blocking by cocaine has been suggested to prevent "shock." This is certainly theoretical so far as my knowledge goes and opens up a limitless field for the physiologists as well as for the surgeon.

In regard to salt solution, to my mind in some cases it is par excellence. The infusion apparatus should be in the

hands of every physician, the only trouble is to get sterilized water, but it is useless for me to go into a discussion as to how to get sterilized water. I have had but little experience in giving infusion into the veins, and I am unable to say whether it is safe to inject direct into the circulation or not, but I think where I felt that the tissues did not absorb quickly enough I would not hesitate to inject direct into the veins, and especially if the shock was profound, but the safest method in my hands is to infuse into the tissues where the skin is loose, use a pint or more in one or more places. The solution is to be warm and made as near like the blood in temperature as possible. Every physician is familiar with the normal saline solution. Of late many surgeons have been adding to their formula of saline solution adrenalin, one to one-thousand, say a dram to the pint. This maintains circulatory equilibrium by its action on the musculature of the heart walls and also on the peripheral blood vessels. In regard to the use of original heart stimulants in a general way, I believe in moderate doses frequently repeated. I think that the patient should always be watched and in severe cases I think the doctor should stay by his patient, gradually increasing the amount of his stimulants, yet remembering the possibility of always over-stimulating. I believe that strychnine is one of the best foods we have for the heart, as the effect on the heart is not only quick through stimulating every part, but lasting, but my individual opinion is that it should not be kept up longer than three or four days; and in very nervous people it would be best to cut down or often cut out the use of strychnine. Caffein and sodium benzoate is also highly recommended by some. As to nitro-glycerine, I am somewhat skeptical as to its general use on account of its lowering the blood pressure. One great advantage, however, is that it will absorb from the tongue and absorb very quickly and it undoubtedly helps out in some chronic cases.

Alcohol will tide us over a bad case temporarily, but for continued use large doses of alcohol is unwise. If you have

a patient in extremis notwithstanding the use of other heart stimulants, I would not hesitate in giving half a dozen hypodermatics in the muscles, for many a time you will find immediate response. Less than half a dozen will do no good. In severe cases alcohol helps to tide the patient over until the other stimulants become effective.

In treating railroad injuries remember that the expected may happen. Every railroad surgeon should have a litter always ready for emergency cases in order that the patient may be removed from place to place with ease and facility.

We must also be prepared to make a rapid differential diagnosis between syncope from loss of blood, compression of the brain, and shock, remembering that while we study the case and are waiting for symptoms to unfold, that the pulse is our monitor. In shock the pulsations are weak and fluttering, in compression of the brain, slow and laboring, and in hemorrhage thrilling and vibratory. Vomiting is often an early symptom of recovery. Remember that in making your prognosis a certain rise or fall in temperature may be taken as a sure ground of favorable or unfavorable prognosis. The less the decline the more favorable, and a fall below 97 is a fatal omen, while a rise of temperature to 100 or 102 degrees during reaction not later than the second day is a salutary indication, but a high elevation, say to 105 or 106 is almost a fatal sign.

I believe in delaying the operation while the general condition is not so good. If we do delay, we must see that the wound is clean; we must get rid promptly of all extraneous materials especially, because of the danger of tetanus. There are some cases where we can delay operation to study the patient's condition. Those patients who are prepared well before the operation rarely do badly. Of course, it is very important that we should look after the patient's food and get the stomach in good shape before the operation.

I have presented this plain paper with the hope that it may bring about a general discussion.

FRACTURES OF THE SKULL.

By I. F. Hicks, M.D., Dunn.

For practical purposes we may divide fractures of the skull into two classes—simple and compound. The simple fracture may be a mere fissure or a depression.

These fractures may occur in the vertex or base or in both. The vertex is fractured by direct external violence, and the base, usually, by indirect violence except bullets or sharp instruments entering through the neck, orbit, ear or nose. The extent of the fracture will depend upon the velocity and weight of the striking object. A small object moving at a high velocity is capable of doing as much damage as a heavy object with a slow velocity. However the character of the injury would depend upon which of these forces were applied. For instance a bullet with a high velocity would produce a small penetrating wound at point of entrance, but a larger and shattered wound at point of exit, while a heavy weight or blunt object would have a crushing effect and produce a large depressed fracture.

On account of the peculiar structure of the bones forming the cranium a blow on the vertex may produce an easily recognized fracture at point of contact, and an insignificant fissure extending around to the base where another important fracture would occur. For this reason we can not always tell the extent of permanent injury. A small fissure is sometimes hard to differentiate from a suture, but if the bone is exposed and cleaned a fissure is apt to retain a streak of clotted blood, whereas a suture would remain clean. A large depressed fracture can of course be detected through the scalp, but a small one, and especially a depression of the outer plate only, can not always be diagnosed until the bone is exposed.

Hematomas are apt to form soon after the injury and ren-

der the diagnosis more difficult by examination through the scalp. Depressed fractures may be suspected when there are brain complications. Fractures of the base can be recognized by escape of blood from mouth, ear, nose, and its appearance under the mucous membranes of the gums and pharynx and under the conjunctiva, also the escape of brain substance and spinal fluid from the orifices and injury to the nerve trunks. Hemorrhage under the conjunctiva indicates deep orbital injury and fracture of the base. Ecchymosis appearing in front of the mastoid process and running upwards indicates fracture of the posterior fossa. Hemorrhage from the ear indicates fracture of the petrous portion of the temporal bone.

The prognosis will depend upon the extent of the injury to the brain and whether or not the wound is infected. In simple fracture without brain injury and infection, recovery is almost certain, but with extensive brain injury and infection, recovery is very uncertain. The mortality in fracture of the base is probably about 60 per cent, however recovery may not be complete on account of a remaining blindness, deafness or paralysis.

The treatment will depend upon the extent of the injury. Simple fissures not infected, without injury to the brain, require rest in bed with ice-bag to the head. Depressed fractures require operative treatment and elevation of depressed bone. In case of shock the operation may be postponed unless the brain symptoms demand immediate attention.

In compound fractures the wound must be carefully examined and all fragments removed and depressed bone elevated.

The wound is almost sure to be infected and it is best to leave it open, packing with aseptic gauze. Punctured fractures should be trephined in order to remove the fragments that have burst off from the inner table. Fractures of the base require perfect rest with aseptic treatment of the ear

and nose. The ears should be wiped out (not irrigated) with a solution of peroxide and kept packed with aseptic gauze. The nose should be sprayed or wiped clean with same solution and avoid irrigation.

In conclusion I would like to make a report of an interesting but fatal case of compound fracture of the vertex and extensive fracture of the base. The patient, a boy 13 years of age, was kicked on top of head by a mule, the blow producing on the right parietal bone a depressed fragment 3-4 inch wide by 2 inches long, which sank entirely beneath the borders of surrounding bone into the brain tissue. From the front of this depression a fissure extended around through the frontal bone to the left parietal, and from the back of it two fissures extended to the base where evidently, from the symptoms, an extensive fracture occurred. When found the boy was in a comatose condition and paralyzed on his right side. Practically no anesthetic was used while the operation was performed and the depressed bone elevated and pressure on brain relieved. The boy regained consciousness and the right sided paralysis disappeared in a very short time, but his tongue remained totally paralyzed and his pharynx partially paralyzed, so that he could not speak and could make only a poor effort at deglutition. The operation on the vertex was successful, the wound began to heal and no infection took place. For several days the patient improved and I thought would recover, but the paralysis of the pharynx and tongue became more pronounced so that he could take very little, and finally no nourishment or water and in two weeks died of starvation.

THE TRAUMATIC NEUROSES.

By Samuel Lloyd, M.D., New York.

Since Erichsen's paper describing a series of cases of injury with distinctive symptoms, the literature of this subject would fill volumes. It is true that Erichsen's ideas are now obsolete, but he started the discussion which has gone on to the present time. Oppenheim gave us the name. The term 'traumatic neuroses' has become so fixed in medical literature that it is absolutely essential for those of us who are engaged in railway surgery, or who are called upon as consultants in accident cases and especially as experts in court, to try and obtain some definite idea of what it means.

Erichsen was a surgeon, and at the time when he published his book little was known of nervous diseases and still less of microscopic pathology. It is not at all remarkable, therefore, that he should have detailed many cases that would now be classified under distinct pathological headings. Erichsen believed that these cases were due to a molecular change in the cellular elements of the spinal cord, or to a local spinal anæmia or hyperæmia,—conditions which have not been proven by the advances in pathology. It would take too long to go over the history or to make deductions from the great mass of papers that have appeared on this subject, but simply to refer to some of the terms that have been used to describe the condition will give an idea of how hard it has been to bring these cases into a class where they can be understood and their pathological changes recognized scientifically.

At the present time, when medicine and surgery have emerged from the field of simple empiricism, and when they are approaching very closely if they have not already reached the position where they rank with the other exact sciences, we are impelled to stop for a moment when we read of such a

term as traumatic neurosis, and ask: what is it? On what pathological changes is it based?

In order to overcome this question many authors have suggested different terms, such as railway spine, railway brain, concussion of the spinal cord, concussion of the brain, spinal anæmia and irritation, traumatic hysteria and neurasthenia, and traumatic hystero-neurasthenia. Many of our text-books pass over the question altogether, and when they do give a chapter on the subject it is unsatisfactory.

Billings says in his dictionary, that "a neurosis is a nervous disease, more especially one in which no definite lesions are found." Foster defines it as "a functional affection, such as neuralgia of the nervous system, unattended by inflammation or any ascertainable structural lesion," while for traumatic neurosis he says, "see railway spine"; and under the latter heading he defines the conditions as: (1) "Chronic meningo-myelitis consequent upon shock caused by a railway accident"; and (2) "a peculiar train of symptoms following a railway accident." There is an initial shock followed by collapse or a period of excitement. There are temperature and pulse disturbances, and the feebleness may terminate in death, or there may be temporary improvement followed by various functional, nervous, and mental disturbances. The condition in the latter case may persist for life. No gross lesion can be detected on post-mortem examination."

Trauma as the cause of distinct lesions has a definite place in surgery. Thus we may have traumatic lumbago, traumatic synovitis of the different joints, traumatic neuritis, meningitis, pleuritis, peritonitis, and so on, ad infinitum. These names simply mean that there has been some trauma which accounted for an inflammatory condition giving definite symptoms and having a well-marked pathological appearance. Is this true of traumatic neurosis? and if it is not true how shall we explain its position in literature at the present time?

Erichsen's idea of a molecular change in the cellular elements of the spine as the cause of this condition has never been proven. Mansell-Moullin says, in describing cases of this character: "After the accident, the patient, who has sustained no apparent bodily hurt (and this seems to be essential), appears perfectly calm and unaffected, often unnaturally so, congratulating himself on his escape. His color is good, pulse quiet, respiration tranquil. There seems nothing wrong, but at night there comes an inability to sleep and a tendency to become feverish. The pulse becomes quicker and softer, the eye bright and restless, the extremities cool, and even within a space of three or four days persistent vomiting and exhaustion, running on to coma may supervene. More frequently the time occupied is much longer, and there follows a condition which has been variously called—for want of a better name—hysteria, or hypochondriasis. These cases might be classed with those usually designated as concussion of the spine."

Bailey says: "These disorders have become uninterruptedly more frequent and more important. They are accident neuroses, and we live in an age of accidents. They often result from actionable negligence, and the frequency of actions brought for personal injuries is constantly increasing. More intimate familiarity with the general diseases of the nervous system has perfected our powers in the diagnosis of all nervous affections, and it now seems that most of these functional traumatic neuroses can be properly classified, even though they may not be perfectly understood"; and he discusses the question under heads of: (1) traumatic neurasthenia; (2) traumatic hysteria; (3) unclassified forms.

Has this condition a pathology? If so, it would easily be classified. Page, who wrote the best treatise on the subject, which appeared in 1883, expressed the belief that in most of the nervous disorders following railway and other accidents no injury to the nervous tissue resulted. Spinal concussion

was urged for a good many years as the best explanation, and considerable experimental work on animals was done by Schmaus, Friedman, Krontal, Watson and many others, to demonstrate that it was possible to produce a concussion of the spine that would cause the same train of symptoms. While a series of symptoms resulted in the animals experimented upon that might be considered corroborative to a certain degree, it is hardly probable that the same pathological change could be induced in the human cord without producing other lesions at the same time. Paralysis agitans and progressive muscular atrophy may result from accident and shock, where no evidence of direct injury existed at the time of the accident. The difficulty with Bailey's classification is in the unclassified forms, and it seems to me only fair to state that while certain of these cases are undoubtedly simply traumatic neurasthenia, and others traumatic hysteria, that among the unclassified there has been some definite organic lesion, symptoms of which will lead to the conclusion eventually that some pathological change has taken place, and that a definite lesion has resulted.

Perhaps two out of a number of cases that I have seen will well illustrate these conditions. A large well-developed woman of 35 was struck and knocked down by a trolley car. She fell on her buttocks, first in a sitting position, and then falling over, struck the back of her head. She showed no external signs of injury,—no bruises, abrasions, scratches,—but complained bitterly of pain in the back. The next day she developed complete paraplegia which did not, however, affect her bladder or rectum, but was both motor and sensory. Her family physician, impressed with the fact that probably a fracture of the spine had occurred, treated her for some time on this theory, and finally I was called in consultation. The history was not that of a fracture compression, but rather hinted to a hemorrhage into the spinal canal, with a gradual ascending compression of the cord. The reflexes,

however, were normal. The anesthesia extended upward to the crests of the ilia. It was evident that with a paraplegia of this extent due to pressure there should have been an involvement of both the rectum and bladder. The diagnosis of hysterical paraplegia was reached, and while we were going through the examination in order to thoroughly convince ourselves of this fact, she had an attack of acute hysteria, during which she moved both lower extremities.

Concussion of the cord, about which so much has been written, has always seemed to me to be more than problematical. That it may occur, I do not deny, but it must be accompanied with other symptoms and must leave permanent disabilities behind, and if this is true, then the case is removed from the traumatic neurosis and must be classified under the head of the disease indicated by the persisting symptoms.

It is important in all of these cases to make the differential diagnosis between antecedent spinal disease and gross contusions. Laceration of the cord may also result from an injury of this kind, but it is obvious that with a lesion of this severity we must get symptoms that are not only definite but lasting. Hemorrhage into the cord has also been noted, but here again we are dealing with a definite pathological condition producing a well-marked train of symptoms. Bailey has expressed this particularly well. "The clinical individuality of concussion of the brain is firmly fixed. It is almost as well established that no such condition parallel in symptomatic behavior and outcome exists in the spinal cord. The question is not whether the fibers and cells of the spinal cord are of different function and amenable to different laws than nerve fibers and cells situated elsewhere, but whether the protecting envelopes do not shield the cord from certain injuries to which the brain and even the peripheral nerves are liable. Temporary loss of function from trauma is shown in the brain by loss of consciousness; in the nerves by numbness,

tingling, and even motor weakness or paralysis in the distribution of the nerves. Brief duration and prompt restoration are the qualities of the condition. It is not probable that such a state of affairs ever occurs in the spinal cord. No spinal cord case at all comparable to concussion of brain or of nerves is known to me either personally or in literature. Once spinal cord symptoms manifest themselves as a result of injury, they show, either by the extremely slow return of function or by the permanence of the symptoms, that gross structural changes have occurred."

Another case bearing upon this condition was one in which I was called as an expert by the city of New York. A man about 45 years of age, while intoxicated, attempted to cross a plank over an excavation that had been made in the street for the laying of water mains, and fell in,—a distance of four or five feet. After falling into the ditch, he lay there for some time, whether unconscious or not could not be proved, but probably in a drunken stupor. He was taken out and helped home by some men who found him, and showed no signs of paralysis or inability to use his limbs. For some days he was confined to his bed by severe pain in the back, but never had any paraplegia, anesthesia, paralysis of the bladder, or of the rectum. From the time of the accident to the trial, some months later, he had been unable to work because of the pain in the back, and he was bent forward and carried himself as a patient does who has lumbago. The claim made by his attorney was that he had suffered a *slight* dislocation of the spine, but no attempt was made to show by proper testimony the region where this dislocation had occurred. It was obvious that no such injury could possibly have occurred above the level of the second lumbar vertebra without producing more definite symptoms, and a dislocation below this point would have been well below the point of pain. Although I was perfectly familiar with the claims made by the osteopaths that such dislocations do occur, which

they replace by manipulation, and which account for many of the neuralgias and indefinite pains that the patients suffer, I testified that such a condition was impossible. Every one who has had any extended experience in spinal surgery knows how difficult it is to reduce a dislocation of the spine, and he also knows how slight a pressure upon the spinal cord produces definite symptoms of interference with the action of the cord. The very anatomical arrangement of the vertebral column negatives any such possibility, and any such diagnosis can only be made by one who is alike ignorant of the anatomy, physiology and pathology. Every operator upon the spine knows well how slight a deviation from the normal is necessary to produce well-marked and definite symptoms that enable a neurologist to locate pretty accurately the segment of the cord involved. Bailey truly says: "Slight and temporary compression is amply sufficient to cause a loss of spinal function, as shown by the complete (and generally temporary) paraplegia which follows operations on the spine, in which the cord may have been merely touched by the operator."

I therefore testified that such a condition as claimed by this plaintiff was impossible, and that his symptoms could be perfectly explained by a rheumatic or traumatic lumbago.

January 19, 1907, I examined for the New York City Railway Company, a woman who gave the following history:

Age, 44; occupation, housekeeper; born Owego, N. Y. No family history bearing in any way upon the present condition. All inquiries with regard to previous condition met with statement that she has always been in particularly good health up to August 11, 1905. Examined for life insurance in 1904 or 1905, and told that she could pass for a million dollars. Has had two children, one living about 15 years of age; one younger, died at three years. Cause of death not known.

Patient in bed. Not markedly emaciated, but with very

little adipose tissue; hands cold; face not drawn and with a fair amount of color; lips are not anæmic or blanched; tongue clear; pulse of fair volume, about 80 to the minute. Claims to be suffering from hemorrhage from the kidneys at the present time. As no specimen of urine was obtainable, no conclusions could be reached in regard to this.

On August 11, 1905, was thrown off a car at White Plains road, near the park. Fell backward, striking back and back of head. Following the fall, swelling on back of head, bruises of the back, and superficial effusion (ecchymosis) of right hand. No fractures, no lacerations. There were some contusions of the lumbar region of both sides (kidney area). Claims to have been unconscious for a few minutes following the fall. Says conductor and motorman tried to persuade her to get on the car again and go to the end of their route and let them call a physician, but when she found that she was able to walk, as she had a friend with her she decided to go to the house. On the way there vomited some dark clotted material—unable to say whether or not this contained blood. Before reaching the house had to be practically carried on account of faintness. Immediately retired to her room. While undressing vomited a second time, this vomit being pure blood. Seen at this time by the doctor, who corroborates the statement that she was vomiting blood at this time. This blood came from both nose and mouth. The doctor claims that he examined nose and mouth for a possible injury, but none was present, and that the blood undoubtedly came from the stomach. No hemorrhage of the ear, and consequently no history could be obtained pointing to a possible fracture of the base of the skull as the cause for the blood from the mouth and nose. The vomited blood was clotted, but there was also present some fresh blood.

Pain in back was constant during the next two or three days—so severe that she was frequently obliged to get out of bed and lean over the footboard, this giving the only relief.

The bleeding from the stomach continued with more or less regularity up to the time of an operation performed for ulcer of the stomach(?) presumably this operation consisted in making a new opening between the stomach and intestines.

The second day after the injury began to have blood in urine. This was evident on inspection and by the microscope. Both blood and mucus were noticeable. She voided urine naturally and had no obstruction from clots.

Lost flesh continuously. When she left the hospital she weighed 121 pounds, and last September weighed 126 pounds. Since then she has continued to lose flesh, and supposes she weighs at the present time in the vicinity of 120 pounds.

Some years ago (eight) during a severe cold, raised some blood, but not any very great quantity.

Inspection of abdomen shows a broad, depressed scar, two and a half to three inches in length, in the median line of the lowest portion of the abdomen, where it is claimed that an operation was performed for a severe backward displacement of the uterus—which is also blamed upon the accident. This was supposed to be the cause of some of the severe pain in the back.

Likewise in the median line, a little above the mid point between the end of the breast bone and the navel, a very clean, narrow scar, where the operation upon the stomach was performed.

Examination of the abdomen reveals a slightly tender spot at the lower end of this scar. Examination of the left kidney through the abdomen does not indicate any enlargement or pain on pressure, or any displacement; spleen apparently normal; stomach area normal in position and practically so in size. As she claims she can not take any solid food and is living on soft diet, the stomach was probably pretty well collapsed, and consequently difficult to outline. The liver area normal, and no tenderness at the notch where

we usually discover gall bladder irritation. Right kidney slightly movable, not enlarged, and not more tender to pressure than usual. Appendix region normal. Intestines apparently in good condition. Large intestine empty. The resonance equal through ascending, transverse and descending portions. No vaginal, rectal, or cystoscopic examination of the bladder possible.

There has been no hemorrhage from the stomach since the operation on that organ.

It will be seen from this that the examination is practically negative and that there are no present data upon which to base the origin of the bloody urine. So far as I have been able to ascertain up to the present time, there is no recorded case of ulcer of the stomach inducing bleeding from that organ (hæmatemesis) resulting from injury to the back. Patient denies having rolled over, being caught in the fender, or being stepped upon by any one else getting off the car, so as to produce trauma of the anterior abdominal wall.

Hemorrhage of the kidneys is a different matter, and is frequently produced by falls or blows upon the back, even concussion frequently producing laceration of one or both of these organs. This usually causes a constant flow of blood from the kidney into the bladder, frequently accompanied with more or less clots and continuing for a considerable length of time. As a general rule, there is also an escape of blood outside of the capsule containing the kidney,—sometimes but not always producing a tumor that can be felt in the kidney region. Sometimes the blood accumulates in the space between the diaphragm and the kidney, that can not be made out; later this,—as a general rule,—becomes infected, and we have an abscess about that kidney which gives definite symptoms and requires ultimate operation for its relief.

In the milder cases of laceration of the kidney, without a tear of the capsule, the hemorrhage would come with the

urine, and the diagnosis would have to be made by a catheterization of the tube leading from the bladder to the kidney. A laceration of the kidney, however, does not usually give hemorrhage lasting fifteen to eighteen months. It generally clears up within a few weeks, the injury to the kidney healing and giving a complete recovery.

I do not understand why this hemorrhage has been so persistent, and do not believe it can be cleared up except by a thorough cystoscopic examination of the bladder, to determine whether or not there has been injury, or whether there is any intentional interference with the integrity of the bladder wall or urethra by the passage of instruments; and also to determine which kidney the blood comes from, if it does come from either of them.

There is therefore in my mind considerable doubt in regard to the lesion still present, and also considerable doubt in regard to the production of a gastric ulcer with bleeding, by an injury of this character. A full description from some one present, and preferably taking part in the operation, of the conditions found at the time of the operation upon the stomach, should be obtained. A traumatic ulcer obtained from a blow on the back, one would expect would appear either on the upper part of the duodenum (beginning of the intestine) or on the back wall of the stomach itself. A laceration or a tear might perhaps have been caused if the stomach was full and still overloaded at the time of the accident. This condition should have been obvious to the operators and their assistants. If there was injury to the kidneys present at the time of the accident, and evidences of bleeding from the bladder, why was not this cleared up in the hospital and the injured kidney operated upon?

I have quoted this case as I reported it to the railway company. It was tried in White Plains in May, 1907. In court the patient was constantly under the charge of a physician, and at well-selected periods of the two days had three

well-marked fainting or unconscious spells. In one of these attacks, her own physicians being out of the court room for the moment, I took her pulse and found it practically normal. A verdict against the railroad for $17,000 was rendered. Some months later, while dining with the surgeon who had operated upon her for ulcer of the stomach, and who had done a gastro-enterostomy, he told me that he had not found any evidences of an ulcer at the time of operation, but operated on the history of hæmatemesis. This patient, I have been informed, has married again and is apparently in perfect health. In my opinion this was a case of hysteria and malingering. Against this diagnosis two conditions may be urged. First, the hæmatemesis, and second, the blood in the urine. Hæmatemesis occurs in hysteria. Fèrè speaks of it as follows: "It not uncommonly appears at the period of the menstrual flow, of which it may modify the amount. Sometimes it coincides with the suppression of the menstrual flow, but has no necessary relation with the latter, and it may occur in man. The vomiting of blood, seen in connection with other hysterical symptoms, appears in consequence of a blow on the epigastric region, or of some strong emotion, or in relation to an hysterical attack, which it may precede, accompany, or follow.

"As a rule, the hæmatemesis is preceded by a pain, with a swelling of the epigastric region. This pain radiates toward the ovaries or the back, and is accompanied by precordial anguish, pharyngeal constriction, and other variable phenomena of the hysterical aura; then the vomiting occurs, usually without effort, in one or two attacks. The patient often faints. The vomiting may occur but once, or may be repeated in a series."

This quotation so exactly describes the condition of this patient that it was difficult to realize that Fèrè did not have her in mind at the time he wrote his article, for she had had an operation performed for the relief of pain in her ovaries, prior to the operation of gastro-enterostomy.

Bailey also says: "Vomiting or spitting up of blood-stained fluid, immediately after the accident, occurs in a certain proportion of the cases. While alarming in appearance, this symptom has no particular significance unless it is the result of injury to the thoracic contents, or to preexisting disease of the lungs. It is observed in neurasthenia, but more commonly in hysteria."

The blood in the urine was undoubtedly produced voluntarily by some instrument. During her whole period of confinement in the hospital, the urine was examined many times and never showed a trace of blood, and in the specimen examined for us some time after the examination of the patient, there were but one or two drops floating on the urine, and not mixed through it.

I have seen no better epitome of these symptoms than the one contained in an abstract of a case placed at my disposal during the preparation of this paper, by Dr. John J. Morehead, Chief Surgeon of the Interborough Railway Company of New York. He says: "In the absence of physical shock, there occasionally occurs in a susceptible person, what has been termed 'psychic shock,' meaning thereby the mental impression conveyed by the sights and sounds of the accident, or other occurrence. It is practically the equivalent of the expression of the laity at the news of the calamity, 'I was greatly shocked.' Symptoms following such a condition are solely of a nervous type, and of a neurasthenic or hysteric nature. In persons of an emotional or susceptible type, all the manifestations of a grave hysteria or neurasthenia are oftentimes produced in the absence of actual physical contact, especially if the element of suggestion be added. This suggestion may come from friends, or from the examining physician. Neurasthenia and hysteria are referred to as 'the neuroses,' or the 'functional neuroses,' and in instances where injury is a causative factor the symptoms of each frequently coexist, so that the term hystero-neurasthenia is em-

ployed. The modern idea as to the causation of the neuroses growing out of trauma is that they occur as a result of suggestion, either auto-suggestion (from the patient), or hetero-suggestion (from the outsiders). The first is a form of self hypnosis, due to constant introspection on a fixed idea, and this finally becomes so real that the patient forgets that it started solely in the imagination. In hetero-suggestion cases, the fixed idea is planted in the mind of the patient by the statement or treatment of the physician, the lawyer, or friends."

My friend, Dr. J. J. MacPhee, has reviewed the literature of this subject so well and so concisely that I can not refrain from quoting what he says: "At first they (the previous writers, Oppenheim, Strumpell, Westphal, and others) took the ground that most of the disorders were organic, or became so from molecular change in the essential nerve elements, as a result of shock, which accorded with Erichsen's views. But further observation and study led them to abandon that claim and accept the teaching of the French writers who, following the lead of Charcot, taught from the start that these cases were functional and in the main hysterical. Our American writers, Dana, Putnam, Walton, Knapp, Bailey, Hamilton, Clevinger, Dercum, and others, have written on the subject quite extensively, and though not in full accord with the French view, still the weight of opinion seems now to favor the exclusion of molecular change resulting from concussion as a cause of organic nervous disease. Knapp is unable to put all his cases in the neurasthenic or hysterical class, and devotes a chapter to traumatic sclerosis, in which he describes the graver forms of this group. Dana refers to them as 'grave traumatic neuroses' and Bailey discusses them under the heading of 'unclassified forms.' Lastly, Hamilton takes the view that all these cases are mental, and finds all the preceding terms insufficient and unsatisfactory.

"This short review discloses a growing tendency to discard the theory that spinal concussion can produce organic

changes in the nervous elements without being accompanied by some injury in some form."

This exactly corresponds with the points that I have been trying to bring out throughout this paper, and brings me to the conclusion that the term "traumatic neuroses" should be discarded and that we should classify these cases under the hysteric, the neurasthenic, and allow the graver forms of Dana, or the unclassified forms of Bailey, to fall under whatever classification may be indicated by the later progress of the case. It is my belief that in all of these cases a series of symptoms will develop that will allow of a definite diagnosis at some later period, and will settle the fact that some definite pathologic change has taken place.

CERTAIN ASPECTS OF THE TUBERCULOSIS PROBLEM.

By P. R. McFayden, M.D., Randleman.

The widespread interest both lay and medical in the tuberculosis problem and the fact that too much can not be said in pushing the program for its elimination is my only apology for presenting this rather general paper on certain aspects of an extensive subject.

I wish to discuss in a general way the causes for the abnormal mortality rate in our industrial centers from tuberculosis, and some of the means of combating the same. What I shall have to say will have especial reference to tuberculosis among our cotton mill population. If the experience of the average medical man whose field of labor lies in a cotton mill section coincides with mine, there will be no question as to the importance of trying to lessen the present frightful loss of life from tuberculosis among this class of people.

Turning to the cause of this condition, I would suggest that one of the chief factors in the abnormal per cent of tuberculosis among cotton mill operatives, lies in the total change in their manner of living and surroundings. Not many decades ago the citizenship of Piedmont North Carolina was largely agricultural, living in the open on more or less isolated farms, leisurely living the life of their forefathers; now this has changed and there has been a steady migration from the farm and open air, to the mill settlement with its crowded tenant houses and over-heated, under ventilated cotton mills. This change has been sudden, the habits and environments of generations have been wholly replaced in a day. The one-time farmer, his wife and children have become cogs in our industrial machine wholly unprepared for the wear and tear to which they may be subjected. These people have never had to take any thought for the morrow,

being blessed with a good climate and fruitful soil naturally drained, they have lived their former lives, blissfully ignorant of nature's laws or sanitary science, living and sleeping in the open air furnished by the large fireplace and open doors, made possible through the cheapness of an easy access to fuel, eating and digesting what was set before them by virtue of their manual labor in the open air. On entering the mill village these conditions change abruptly. On account of expensive fuel and hours spent in the steam-heated mill, the close room and iron heater replace the open fireplace. Mechanical eating by the whistle replaces the keen relish enjoyed three times a day on the farm. The close over-heated living room suggests to us another fruitful cause of the prevalence and spread of tuberculosis; that is in the infected tenant house, and, this to me, seems a very important factor.

The cotton mill population is notoriously migratory. They drift from one mill town to another, when the spirit moves, often moving from house to house in the same village. It would be interesting as well as alarming to know how many houses one chronic tubercular, among our floating mill help, can infect. We see these cases only too often, with no care or thought as to when or where the sputum falls. To illustrate, I was called not many weeks ago to see an old lady who was suffering from a chronic cough of about three years duration, on examination her sputum was found to be loaded with tubercle bacilli. On questioning her I found that she had lived during the last three years in three different mill towns and occupied eight different houses. If we believe in the infectiousness of tuberculosis, can we wonder at the incidence and spread of the disease among our tenant cotton mill help, with such histories as the above constantly before us, knowing as we do that there is seldom any effort or inclination toward prophylaxis or disinfection? Even the more careful will move serenely in after the removal of the consumptive by death or otherwise, relying on a little lime

sprinkled or a little sulphur burned to destroy the late infection.

The too hurried eating of hastily cooked unpalatable food, together with want of relaxation and the unvaried monotony of their daily lives might also be mentioned as causes which apply especially to the mill population in producing a condition of lowered vitality and deranged metabolism conducive to the development of tuberculosis.

Turning to the means of combating this tubercular tendency among these people, I would suggest that the most crying need of the sanitary worker and health officer in our State is the absence of any reliable vital statistics. The medical profession should use its influence to have our Legislature enact laws requiring the uniform compiling and keeping of all available data bearing on the subject of vital statistics. Our last Legislature made a start in this direction, and we should, as a body, give our support to our legislative committee, for how can we know the results obtained in the present crusade against consumption without these reports? The time will soon come when the report of tuberculosis as an infectious disease, will become a necessity, and I can see no logical reason why it should not now be demanded, as in my experience the loss from tuberculosis among the class under discussion amounts to as much as all other infectious diseases combined, leaving out the diseases of infancy. The profession should also demand the extension of the State Hospital idea as rapidly as is possible, for the majority of our industrial workers haven't the money or the intelligence to combat the invasion of the tubercle bacillus, and many promising incipient cases go on to a consumptive's grave for want of the help that could be given them by a few months in a state institution. The returned sanatorium patient would be of inestimable help to us in our work among these people in the dissemination of knowledge about tuberculosis. They will listen to one of their co-workers when even a

medical Moses or Elias had signally failed to impress them with the infectiousness and curability of tuberculosis if treated in its incipiency.

In conclusion I would suggest that a little time by all of us who work among these people, given to the teaching of sanitary living and a little judicious advice as to the preparation of food as we move among them from day to day, will do much in future years to banish from the borders of our State the blighting hand of the great white plague.

FALLACIES PAST AND PRESENT IN THE TREATMENT OF TUBERCULOSIS.

By William M. Jones, M.D., High Point.

We have so many papers, papers that are of a strictly scientific character; that I hope you will not take it amiss, if I diverge from the old and well-beaten path of science, and for a while tread "the big road" of fallacy.

I will not attempt mentioning, more than a very few of the interesting points along this highway. Upon this road, we have and are all traveling, some for only a little distance (those whom death has called, or calls early); others continue for a more or less lengthy period, but all travel portions of it at one time or another. The few points in our short and very hurried review of to-day, will be directed to those errors that have to do with the treatment of tuberculosis.

It has ever been a well recognized fact that all must die; and to an equal extent that all must err, hence the expression, "to err is human."

Tuberculosis was a well recognized disease, long, long ago, so long in fact that Democritus, Herculitus, and Hippocrates, appear as recent graduates. The Assyrians 1500 B. C. claimed the cause to be a "worm," as illustrations in their treatise show; but we do not consider that they were familiar with bacteriology. Very little was known of this disease until the time of Hippocrates, about 400 B. C., who wrote the first clear and concise opinion, as to its symptomatology, and from his time to that of Koch, a period of more than 2,000 years, elapsed before the cause was positively demonstrated. It is very easy to understand that, in the past imperfect knowledge of disease has obscured the true significance, of many serious affections, and consequently led to mistakes and errors. While we of to-day are further ad-

vanced in scientific knowledge and laboratory technique, than were our ancient brethren, we are none the less liable to error. Our advance in scientific methods of diagnosis has led to an exaggerated estimation as to their value, or if not this, certainly to the underestimation of that more essential point, of correct clinical deduction. This has led to the loss of that faculty, with which our ancient colleagues were so endowed, viz: clinical acumen, the same which is so essential in the diagnosis of this disease.

While I recognize the absolute necessity of microscopic evidence, and know that in many diseases the correct diagnosis would be impossible without its aid, in this disease I believe it to be a source of error, and one that should never be relied upon for affirmation in a doubtful diagnosis. When the T. B. are found there is absolutely no doubt as to the nature of the disease, nor is there any that it has advanced beyond the initial and incipient stages. When we wait on the microscope we lose the most propitious and opportune time for treatment. We sleep while our arch enemy is securing and strengthening his fortifications and strongholds upon the unfortunate, and thereby seriously altering the prognosis of the case. So do not wait on the T. B., or until every one in the neighborhood has called it a case of consumption.

Anciently, I am of the opinion, that most errors were errors of omission, whereas to-day we have both omission and commission, with the latter predominating. Brehmer, 50 years ago, wrote as the subject of an essay, "Tuberculosis primis in stadis semper curabalis." In consideration of which we must bear in mind the fact that Brehmer was speaking for himself alone, and also that Brehmer was an exceptional physician.

Our errors of to-day are those of commission as regards treatment, and omission as to diagnosis. The reason for this has been, and is due to the fact that we accept certain forms of treatment, on the word of one or more men, without first

examining it as to its feasibility or practicability from the standpoint of reason and physiology. Whereas had this been done, and at the same time bearing in mind the pathology of the disease, the history of the treatment of tuberculosis would be different than it is to-day. In substantiation of this I call your attention to that implement of death, the vacuum cabinet. Have we ever treated tubercular coxalgia by voluntary or passive motion of the hip, or would we treat Potts' disease other than by fixation and rest? Why then this inconsistency? I'll admit that I am unable to explain, for it appears to me to be about as rational as excision of the ear for erysipelas, or that of the toe for ptomaine poisoning. When we think of it we are reminded of the ancient Hindoo, who under the semblance of an embrace would choke the life out of his victim. So let us write its epitaph and be done with it forever: "I have shortened the lives of all who came within my embrace."

The next error is one that has ever been and is now perpetuated, *i. e.* the error of superalimentation. This error has a firm hold not only on our profession but on the general public, and no little time and patience will be required to fully uproot and eradicate it. The majority of cases of tuberculosis are encouraged to eat three or four full meals per diem, to eat all they can and a little more at each meal, besides ten or a dozen eggs between times. The one idea was that an excess of food caused an increase in strength, producing improvement in the physical condition and thereby the better enabling the patient to withstand the ravages of his disease. Apparently this was all very nice and was good theory, for a protein diet is necessary to strength and development, but in our zeal we have overlooked the fact that an excess of proteids necessitates an excess of work and energy, for the body has not the power of storing a superfluous amount, and its only alternative is to convert the excess into urea, and excrete it. In this way an excess of food acts

as a detriment by imposing unnecessary and futile work, and the consuming of energy that should be spared. Frequently after a full meal we see a rise of one or two degrees of temperature, and which is attributed to an excessive indulgence in physical exertion. In the majority of cases this has been due to an excess of the proteids ingested, the digestive juices being inefficient to carry the process of all to completion, and in place of the nutrient and strengthening peptones we have only a halfway product in the form of proteoses, which when absorbed act as poisons and thereby cause an elevation of the temperature.

There are so many points to which I would like to call your attention that I hardly know where to stop, but ere I close let me mention one more error, one prominent and ubiquitous error, that dogma of the medical profession, viz, over drugging. From the time when such a prescription as dragon's blood 2 scruples, garden snails 150, crab's eyes 210, sarsaparilla and sun raisins a a 2 ounces, ground ivy 2 handfuls, colt's foot, oak of Jerusalem, bawm, spotted lungwort a a 1 handful, yolk of 15 eggs, cinnamon and mose a a 1-2 ounce, cow's milk 4 1-2 pints, canary 1-2 pint. Misce. Distill in a cold still without burning. Take 3 oz. t. i. d. Our prescriptions of to-day, while more pleasant to the eye and taste, probably, than the above, are of as doubtful therapeutic recommendation, and some I doubt not are more harmful to the system than was this mixture.

Over drugging is an error whose faults are legion, stomach, intestines, liver and kidneys all suffer, and the functions of all are to a more or less degree impaired if not entirely destroyed by this malicious practice.

So we see that there are errors ad infinitum, the which we might continue to mention until we were all exhausted, when the half would not have been told, but these I think are sufficiently conclusive, to make us more circumspect in our treatment of tuberculosis. By which we will minimize the errors

of the future, and at the same time lessen those of the present, when a great stride will be made for science, and a veritable boon to suffering humanity.

Much of the present-day skepticism will be put to rout, there will be harmony in our ranks, with esteem and respect from the public, and medicine will be raised to that irrefragable throne of science.

HEMORRHAGE FROM THE LUNGS IN PULMONARY TUBERCULOSIS.

By William Redin Kirk, M.D., Hendersonville.

Unlike cough and expectoration hemorrhage does not always occur in pulmonary tuberculosis. It is evident in a certain proportion of all cases, however, varying from 24 per cent as observed by Condie to 70 per cent according to Williams. This wide difference is no doubt due to difference in classification. A fair estimate perhaps could be had from the third annual report of the Phipps Institute based on an analysis of 2999 cases—50 per cent of these had hemoptysis. The word hemoptysis being defined as any form of blood spitting from blood-streaked sputum to a frank hemorrhage. Of more interest than the relative frequency is the occurrence of small hemorrhages or the expectoration of blood-streaked sputum as one of the early symptoms of pulmonary tuberculosis. Often it is the first to make its appearance—coming suddenly and without warning in an otherwise apparently healthy person. A feeling of warmth under the sternum, a little tickling in the throat, a slight cough and the mouth fills with bright blood or sputum. Hemoptysis is not pathognomonic of pulmonary tuberculosis as we all know, but its importance in making a diagnosis is beyond question, for after careful examination excluding all other sources of hemorrhages tuberculosis can be reasonably affirmed, and it should not be forgotten that even though other conditions may explain the bleeding tuberculosis may yet be present. I recall a case in my own practice of a woman whose sputum contained T. B. who had hemorrhages at irregular intervals—sometimes they accompanied the menstrual period, at times they seemed a respiratory expression of the uterine function and at times they occurred altogether independent of the menstrual epoch. She never seemed to be doing as well just prior to the hemorrhages and

some of them may have been due to fresh involvement with the consequent vascular changes coming at a time of circulatory disturbance or have been caused by absorption of the accumulated toxins of the tubercle bacillus as Cornet believes it to be, a cause of pulmonary hemorrhage. Hemoptysis appearing in the early stages of tuberculosis is generally slight as it usually comes from vessels of capillary size—this and the fact that throughout the course of the disease small hemorrhages may occur without apparent injury has led some observers to look upon the loss of minute quantities of blood as favorable. "Small hemorrhages are useful rather than otherwise," says Bridge, and it seems reasonable, moreover, that minute quantities of blood are sometimes, at least, indicative of a reparative process says Smith, and others have voiced the same opinions until there seems to be an impression that slight hemorrhages are of small consequence. I do not believe this view can be substantiated either by the known pathological processes involved in hemorrhages from the lungs or from clinical observation of the cases that bleed. If we look upon blood-streaked sputum or minute quantities of blood as a favorable symptom indicating a reparative process we reason by analogy comparing the conditions in the lung to ulcerative lesions elsewhere and the well-known tendency of healthy granulation tissues to bleed. We must, then, confine this view to those cases where cavities have formed whose walls are possibly covered with granulating tissue and not to those early cases where the vessel walls have been invaded by the living bacilli. Even in the incipient stage before proteins have formed to protect the vessels the tuberculous one faces the dangers of fresh infection and miliary invasion with each erosion of a vessel and the dangers are out of all proportion to the amount of blood lost, for the real peril lies in the increased virulence of the bacilli unmodified as yet by those changes which take place with long imprisonment in the tissues. The point I wish to emphasize is that hemorrhage is more often an expression of the extension of the tuberculous

process than an evidence of healing, and instead of leading the patient to regard it as of little consequence he should be made to understand its true significance that he may better aid the doctor in his efforts to effect a cure. If it is the first hemorrhage it is the psychological moment to gain that confidence and control of the patient so essential to success. He is distressed, alarmed, torn by conflicting hopes and fears, he wishes to deceive himself as to the true nature of his disease and he is willing to be deceived, at least he wants to be reassured and he should be. Give him all the comfort you truthfully can but tell him he must heed the warning. He must change his habits, regulate his life and by resting, giving nature a chance to bring her protective forces into play, he may reasonably expect to avert what would otherwise be a most serious consequence." Hemorrhages appearing later in the disease have a much graver import. They usually denote a turn for the worse although it is surprising the amount of blood some may lose without much injury. Here again many elements enter to influence prognosis, and the actual loss of blood may be the least danger. No exact amount of blood can be stated as the maximum that any one may lose and yet survive (Crile). Howell says that a healthy individual may recover without serious difficulty from a loss of as much as 3 per cent of the body weight of blood.

But as the rapidity of the hemorrhage and the personal equation enter largely even in health these observations are of little value in diseases. Death may occur from actual anæmia or suffocation if the hemorrhage is large and rapid or the inspiration of blood and sputum into healthy areas may set up pneumonia and caseation. The probability of a recurrence of the bleeding in a given case will depend largely upon the pathological condition and the habits of the individual. Hemorrhages occurring at short intervals are always to be looked upon with concern even though the amount be small. I have known hemoptysis completely to reverse the previous favorable outlook, says Babcock.

TREATMENT.

Hemorrhage occurring early in the disease requires little treatment per se. The pathological conditions underlying it, however, should receive the most careful consideration. If the patient is nervous and excited I administer a small dose of morphia hypodermatically at once, as I consider quieting the patient of the utmost importance, for should he remain restless and excited it only adds to the bleeding. After he has been assured that the loss of blood in itself is not dangerous, and it rarely ever is in hemorrhages amenable to treatment, other and more positive measures may be instituted. It is not necessary to waste any time in making an examination of the chest. The bleeding is coming from vessels that are inaccessible and their location is of little importance; besides, any examination made at this time is necessarily hurried and unsatisfactory. If the patient has lost only a little blood, is still bleeding and has a pulse of high tension, I give a tablet of 1-100th gr. nitroglycerine on the tongue and a hypodermic injection of atropine sulph., regulating my dose to the briskness of the bleeding. I do not hesitate to give 1-50th or even 1-25th gr. atropine. The result is almost immediate. If, however, the bleeding does not cease I do not repeat the dose but rely on other means. The tension is then kept low by 1 gr. doses of sodium nitrite as it is more lasting in its effects than nitroglycerine but does not act so quickly and for that reason I use the nitroglycerine first and follow with the sodium. Complete physical rest must be maintained until hemorrhage ceases. The semi-recumbent position suits the majority of cases but should not be insisted upon if the hemorrhage is large. The patient will usually assume the position in which he can raise blood the easiest and at the same time get air. If it is known which is the good lung it should be protected by position so that as little blood will enter it as possible, and it should not be forgotten in this connection that a lung bound down by

adhesion may easily become inundulated. I might say here that I have never had the temerity to collapse a lung for hemorrhage, although I have strapped the bleeding side with adhesive plaster with some success. The application of cold to the chest should be made correctly or it defeats its own object. Theoretically it acts by stimulation of the vaso-constrictor fibers of the upper five dorsal nerves of the sympathetic system by impressing the sensory filaments of the skin through the intercostals. I usually use a small napkin folded to about four to six inches after the manner described by Babcock, only I use a block of ice instead of the ice water. Have two napkins so that one is always cold. Lay it on the bare chest and allow it to remain thirty seconds, remove it and replace it with the other, which should remain the same length of time. It must then be placed on another part as the effect to cold is soon lost and the stimulating effect may be followed by capillary paresis.

In treating hemorrhage from the lungs in pulmonary tuberculosis one should always have the pathological condition clearly before him. In the early stages it is a congestive or capillary hemorrhage requiring little treatment other than rest and lowering of the blood pressure to prevent opening vessels of larger size. Later on after the disease has progressed to the point of cavity formation opening of a vessel of some size is a serious matter, and treatment now is directed to the arrest of the hemorrhage and the formation of a thrombus. As we have no reliable agent to increase coagulability our efforts have been directed to arresting the bleeding by slowing the blood current and lowering tension. Agents that constrict the lumen of the vessels, such as ergot, can have no place in treatment, for no matter how serviceable they may be in hemorrhage in other localities they are contra-indicated in hemorrhage from the lungs. We have only to remember the peculiarities of the pulmonary circulation. The terminal branches of the pulmonary artery do not anastamose as do

the terminal branches of arteries elsewhere. The walls are much thinner and have less muscular fibers; then the pathological conditions must be taken into account. The vessel walls have been weakened by deposits of tuberculous material and thickened in places by the inflammatory action of the proteins, so you can readily understand the effect of any vaso-constrictor acting through the whole system. For my own part I do not care to risk any drug that so raises arterial tension that I must constantly watch the aortic blood pressure. I might check a capillary hemorrhage only to open a larger vessel. If such drugs as ergot and adrenalin had a selective action in the lung it would be different, but as they do not have I will put my trust for the present in vaso-dilators.

RELATION OF COMPANY TO AGENT AND EXAMINER.

By Albert Anderson, M. D., Raleigh.

The purpose of our symposium includes a great subject, the consideration of which covers many sides or phases. It is a subject upon which every physician should be thoroughly posted who accepts a commission to do our work. It embodies great principles of trust and protection, and for its absolute safety our profession stands in the most important relation.

To conduct a life insurance company successfully requires the greatest financial economy on the part of the general management and the best selection of risks by the medical department. Generally, the company is safe and sound if the Medical Director can do his best work through a medical staff in the field which does its full duty in the examination of every applicant, and to be enabled to perform this duty each examiner should have the following qualifications: thorough training in diagnosis, excellent ability in prognosis and knowledge for reaching into the causes of various diseases, especially chronic, and the ability of proving a man healthy or diseased, regardless of the many defects in personal and family history and misrepresentations so frequently made by those who desire a policy without having the qualifications to obtain one. An examiner should also possess courage, honesty, firmness, decision, shrewdness and tact, which comes either by inheritance or is acquired. He should never forget that in his practice, he looks for disease, and in making examinations he looks for health. Therefore, he should be trained to recognize the signs of health of applicant as well as the signs of disease in his patient. "Insurance normal, which means a promise of long life," and when an applicant does not possess this, should he get a policy at all, should have a special rating. All absolute facts

should be furnished to the home office, for this is absolutely necessary for the protection of the company and to do justice to the applicant, but many examiners seem to forget this and bring forward their own opinions as to what the applicant should have. Therefore, it is a fact that the majority of rejections are made when they have been recommended by the examiner, and in saying this we mean no reflection upon the honesty and intelligence of the examiner, for the Medical Director has a wider and broader scope of information and knowledge through the many different channels of inspection and the various books of reference. One of these reference books is the work of a committee appointed in October, 1901, by the American Actuarial Society on motion of Mr. David Parks Fackler for a special investigation over a period of thirty years of ninety-eight separate classes of risks, thirty-four companies furnishing the records and bearing the expense, which perhaps was the most costly work ever produced for the use of insurance companies. It is a custom of most companies to confine the work of the Medical Director entirely to his company's interest and service. To my mind a certain line of work or hospital service is a qualifying education for the best and highest work possible for the medical department, and in this opinion I am sustained by the best of authority. I mean by this certain amount of work, only just enough not to interfere with his office hours for the full and proper consideration of each applicant.

The medical director's relations to the agent and examiner are varied, and hard to keep in running order without friction in his efforts to protect the interests of the company—do justice to applicant and render "due regard to the rights of the solicitor and examiner." Based upon such statistics as the above work referred to, and his practice as outlined above, his work is much safer than it was prior to 1900.

Having an opportunity to post ourselves on the medical side of life insurance and having more or less experience in the past from general practice, and keeping this experience

up in limited practice or hospital service, I claim we have a good chance to be "eminently fair and judicious in our decisions." The home office is away from all personal bias or sympathy. With this statistical information, coupled with the above experience and study, our judgment should become accurate, observations acute, and come into possession of that peculiar sense growing out of our work—"suspecting danger under a fair exterior, which proves real upon investigation."

The medical department of a life insurance company was first started in America. In the beginning of life insurance companies a party was merely inspected by the laity, judging the party by the way he looked, and a certificate of health by the party seeking insurance. That is thought safe by some lay people of to-day, but we know from past experience that it would lead to a comedy of errors, a sorry lot of policyholders, and in a few years terminate the existence of a company conducted upon such a basis. Healthy men are *persuaded* to take life insurance, and they go into it with deliberation. Unhealthy ones *rush* in after it if they think there is a chance of passing the physical examination. Only by proper medical selection through an intelligent examiner can a company operate with safety to itself and its members, for the "laws of mortality are as fixed as the laws of gravitation." The chief benefit of medical selection is shown during the first five years, when the applicant alone is considered, but when family history is taken into consideration and properly interpreted as to the influence of heredity and association with contagious diseases, this history projects its good effects into many years. Life insurance at its worst, I would like to say, is simply a gambling venture; at its best it is a great trust whose "proper discharge is guaranteed by scientifically devised premium tables based upon natural law and enforced by the strong arm of the law of State and nation." The applicant who receives a policy should deserve or merit it upon the basis of at least average good health, and when

he is selected by a medical examiner upon this basis, and given a policy he has a contract which means to him a declaration of independence for the protection of his family when he is dead.

I wish to call your attention as to how a medical examiner should consider himself. He should consider himself an officer of the company, for such he is, and as evidence of it he receives a commission from the medical department, after inquiry, as to his competency and reliability to discharge the duties of this office has been made. Having accepted this commission, he is in duty bound to acquire an average knowledge, if no more, of the medical side of life insurance for the protection of the company which he represents, and this knowledge should comprehend his right relation to applicant, agent and company. First as to applicant. His position is entirely reversed to that of examining a patient. A patient applies for relief of some disease, comes of his own volition, and gives his condition in full—tells the whole truth, and sometimes exaggerates that, for he wants to get his money's worth and be cured by one sitting, and it is to be stated to the doctor's credit, he does his best to cure at once.

By way of parenthesis I will state that all rules have exceptions, and there are patients who are afflicted with certain diseases or conditions which they do not admit, but these are frequently understood through a superficial knowledge of physiological laws of nature. But when such facts are suppressed the doctor is not misled, because of his training. Hence, it is important to train the doctor for a skillful management in the consideration of the applicant for life insurance who is not willing to admit but one thing, that is, at present he is in good health; average good health, if you please, and does not carry in his body seeds of any disease. For his guidance in this work he has a list of questions which can only cover the salient points relative to occupation, habits, family and personal history, physical build and con-

dition. I am always loath to criticise, even when considering the dead past, but it has been the rule of examiners to too often rush through this set of questions with all possible haste for the $5 fee, nothing less. But, that past work worthy of this criticism has lost out among the great majority who stand on the medical side of life insurance. You now see *thought* in answering every question, precision and accuracy in the words used in giving information, and while this is being done his mental and spiritual condition has so exalted him that he frequently fails to fill out the voucher attached, and the medical department is put to some trouble in returning his voucher to be completed, and thus remind this noble man that the filthy lucre of $5 will be offered to contribute to his living expenses. This well-trained examiner under consideration can, with one fell swoop of the eye, take in many things which mean much in the final diagnosis, and rating, first-class, good, fair or poor. From center to circumference, like radiating spokes of a wheel from hub to rim, he sees the man, not with a stern or critical look, but with a look of sympathy and interest—with a facial expression of bonhomie—fellows well met for the mutual consideration of personal data for a great purpose. In this condition the work begins, and one, two, three, question after question is asked and answered in all truth and frankness, and conveyed in words so clear that even a wayfaring medical director afar off, although a d....n fool, can get the truth of that applicant's condition, and accept or reject without doubt of making a mistake. With this skilled, sympathetic, intelligent examiner the applicant is moved to ask questions, and generally begins by saying: "Well Doc, tell me about this company. Is it any good or not?" Right here is where the examiner in the past fell down and did a mighty mean thing. His expression changes in a twinkle to one of doubt, but no word is uttered against the company directly, but with sad, or with at least some regret, truth compels him to ad-

mit that he knows very little about this company, he has no policy in it, but holds his policy in the New York Life, Mutual Benefit, Northwestern, etc., etc., that he has a position as medical examiner only with this company. "You know companies are careful to get the best doctors obtainable, and that is why, mainly, I hold my commission. In fact, the medical director of this company is inexperienced, the company is young, etc., etc. I don't know the agent. By the way, everybody likes the agent of the Northwestern, etc., etc." That has been done in the past, to my knowledge, and I wish to say that the examiner, accepting a commission and speaking as above against a company concerning his commission, is one who robes in the livery of heaven to serve the devil in; a cold-blooded, triple extract of the ....., who robs an agent of his hard-earned commission and the company of an applicant, seeming to forget that in accepting a commission he does so as one would accept a dagger from another for the purpose of thrusting it into his heart to the death, for such conduct means business death to agent and his company, for when such things are said by the examiner the tongue of men nor angels could not persuade the applicant to accept his policy when issued. Therefore, I declare from principles of right and the best authority that examiners should do or say nothing to obstruct the completion of a contract in justice to the agent as well as to the company.

Delay in issuing policies occasioned by correspondence to complete an examination, which so frequently loses an applicant, is also an injustice to both agent and company. Therefore, omit no answers, give full information about every applicant, and you earn your fee and do no injustice to either.

Duty to the applicant by the examiner is another phase of the question to study. The applicant has the right to have all the facts bearing upon his insurability presented to the

medical department in a clear, unmistakable way. Rejections due to carelessness, hurry or ignorance of the examiner is a great injustice to applicant, if he is entitled to insurance, for a rejection is one of the hardest things to overcome to obtain a policy in the future. But if these same things should operate in an applicant's favor, when he should not have a policy, your haste, carelessness and ignorance become criminal in crippling the company financially which you represent. Better turn loose ten guilty men than convict one honest one, is but a parallel truth in stating that it is better to refuse ten healthy applicants' policies than to accept one who has a heart, kidney or tubercular lesion upon the basis of long life, and applicant turns up his or her toes within a few months or years. To take life insurance means financial sacrifice for the good of those you love. As stated above, a policy means a declaration of independence for the family after you have passed off the stage of action, and to be refused or rejected is a serious matter, and if not deserved, a great injustice. Therefore, every applicant has a right to demand a careful and intelligent examiner to pass upon his case. Right here you will find your hardest task in passing justly upon applicants when the influence of influential persons, friendships and family physician enter into the problem so frequently and stifle conscience and mislead the medical director in not giving or suppressing facts. Facts are what we want in examination instead of opinions, and to get these facts to the home office, we depend upon your eye, ear and mind to understand the applicant in his true light and rate him according to the condition of his health.

LIFE INSURANCE AND MORTALITY.

By J. M. Parrott, M. D., Kinston.

Life insurance companies are concerned vitally in mortality of their patrons. Their existence depends upon a reasonably low mortality and their prosperity on a mean low mortality. Preventive medicine is the most exact of the various divisions of medicine, and its shortcomings are not entirely because of its own inexactness, but more largely because of the attitude of the public in a general way toward it. In my opinion, life insurance companies, so vitally concerned are they with mortality, could not do better than to support financially all modern efforts for the prevention of disease.

Fire insurance companies have found it to their advantage to support salvage corps. As suggested by Dr. Foster, they assume the attitude that all threatened property is insured, and they use their utmost to protect it. While the percentage of the insured to the number of population is very small, yet I believe that a life insurance company could afford, and it should assume a similar attitude as regards public health and the people.

The government has found it to its advantage to apportion a large amount of money each year to our agricultural department to protect animals and domestic fowls. It has proven to be enormously advantageous to the farmers and stock-raisers to have the principles of preventive medicine applied to their cows, hogs, chickens, etc., and it has added materially to our national wealth. I am prepared to take the position that the government should do the same, identically, for its citizenship, and that the life insurance companies should contribute their proportionate part to this good work.

It is a more simple problem to drive typhoid fever from our American cities and country districts, than it was to stop yellow fever in Havana and Panama. Personal ex-

perience in the former city, in the army, demonstrated this to me.

Preventive medicine and modern improvements have increased longevity, remarkably. It is estimated by no less authority than Baines that the average duration of life in India is between 23 and 24 years. Within the last 350 years, according to Professor Fisher, Finkelberg has estimated that the human life has probably been doubled in Europe. Quoting from Professor Fisher: " If we take life for different periods for England, France, Prussia, Denmark, Sweden and Massachusetts, we find that human life lengthened during the seventeenth and eighteenth centuries at the rate of 4 years per century; that during the first three-quarters of the eighteenth century, it lengthened at the rate of about 9 years per century; that at the present, it is lengthening in Europe generally at the rate of 17 years per century, and in Prussia (which is perhaps the home of preventive medicine) at the rate of 27 years per century. For this country, the rate can only be judged by the statistics for Massachusetts, which shows that life is lengthening by about 14 years per century, or approximately one-half the Prussian rate."

Modern sanitation and prophylactic medicine have been responsible for this increase in human longevity. I would suggest that life insurance companies could show a large annual saving in mortality by pushing this good work along, because at this rate we would have a right to assume that in a comparatively few years, even while many of our companies were yet in their young manhood, the period of expectancy would be materially increased. This would mean a great deal for the policy-holder, as well as the stockholders of life insurance companies, because it would mean a reduction in premiums and an increase in company earnings.

Pasteur said some years ago, "It is in the power of man to make all infectious diseases disappear from the earth." This is unquestionably true. Proper instruction of the

people in the laws of health as applied to the individual, would increase and strengthen natural immunity. To illustrate: cotton mills "which are making the young girls of our land weary" by long hours and close confinement, sap the vitality of our people. We are overdrawing on a most valuable bank account in this matter, and the nation, in the future, must pay the debt, as sure as the conditions are continued. The money made by working our children 12 to 14 hours, indoors, out of God's sunshine, is blood-money. This is but an example of some of the ways in which the body-resistance of our people is being lowered. A great deal of attention is given, and rightly, to prevention of disease by attacking the disease itself. The hour has struck when we must assume the correct and aggressive attitude, that of increasing the "resistance" of the individual. This importance of a sound body has never been over-estimated. I am yearning for the hour when our sanitarians and hygienists will teach us more about how to have a healthy body by the care of the body itself, than we are taught to-day. When our scientists more thoroughly realize that body-resistance counts for much, they will have taken another and most valuable step forward in preventive medicine. A healthy body will not contract disease as readily, by a great deal, as an unhealthy one, and the preservation of health by attention to the body appeals to common sense.

This phase of my subject is exceedingly interesting and commands for itself a vast amount of research. From the standpoint of disease, the discussion is very beneficial. According to statistics which I compiled three years ago, from data about 12 months old, I found that there were in 1905, approximately, 451,736 deaths annually in the United States from "transmissible" diseases. This would represent, by estimating the value of human life at $1,000 average burial expense about $30, and the cost of sickness at $3 a day, a total loss of $487,860,880 which is in excess, by forty-four

million dollars, of the total tax valuation of the entire State of North Carolina. We can scarcely realize what this enormous waste means. In North Carolina for that year, according to the most reliable data which I was able to obtain, there was 8,840 deaths from "transmissible" diseases. By using the same basis of estimate as before, and in my opinion, these are very low, we sustained a loss of about $9,000,000, a sum probably more than the tax valuation of the average North Carolina county. Without going too specifically into the subject of deaths from "transmissible" diseases, permit me to call your attention to the loss sustained in 1905 from typhoid fever. The lives lost from typhoid fever in that year, amounted to about 35,379 in the United States, showing a financial loss of about forty-two million dollars, and during that year there were about 1,250 deaths from this cause in North Carolina, representing a loss of about $1,512,500. It is comparatively easy to eradicate typhoid fever. It has been done in Munich and other places. About ten years ago it had been reduced 59 per cent in Lawrence and 60 per cent in Chicago. It increased over 70 per cent in St. Louis during the time that Chicago used Chicago River as a sewer. From a financial standpoint, to say nothing of the humanitarian and sociological aspect, it will over-pay the government, the individual and corporations, and particularly life insurance companies to make a steady effort to wipe typhoid fever from the face of the earth. Mind you, I use this disease simply as an illustration of other "transmissible" diseases and what can be done with them.

Tuberculosis furnishes the highest death rate of all our preventable diseases. About 200,000 die in the United States yearly from it, in some one or more of its various forms, 548 per day. It is probable that every "consumptive" is disabled 60 days at the very least; that the average burial expenses amount to $30, and that the life lost would be worth at least $1,000. This basis of calculation as used before,

would show an annual total loss of $236,600,000 to the United States. In North Carolina there were approximately 2,350 deaths from consumption in 1905. This would represent a money loss of about $30,000,000. These figures are simply appalling, and yet they are not over-stated. I do not believe our people have the least conception of what tuberculosis is costing us every day. From the standpoint of life insurance companies, the loss from tuberculosis is simply enormous. Twelve per cent of our insurance losses are due to it. In six years it cost one large company $9,000,000, and all the reported companies in that year lost, together, over fifty millions of dollars from tuberculosis. Quoting from a high authority: "The activity of paternalistic Germany along these lines (referring to the prevention of tuberculosis, etc.), is said to have resulted in saving annually to the State 70,000 lives, representing potential wealth amounting to a sum variously estimated at from $105,000,000 to $500,000,000.

In my estimates I have not taken into consideration the losses caused by sickness of those that recover from preventable diseases. These would add many times to the amounts I have given, as the total death loss from all "transmissible" diseases, or from tuberculosis and typhoid fever. In reference to tuberculosis, Green says, "If in this country the mortality might be reduced one-third, we should save to the nation annually 50,000 lives, and if our insurance companies could reduce their mortality by this figure (they might easily reduce it two-thirds), they would be able to save to their policy-holders at least 4 per cent of their total annual death loss, which saving would have amounted in one year (1898) to over $3,000,000."

Insurance companies are taxed in the United States about eleven million dollars a year over and above a holdings tax. This tax is, in my opinion, unjust in its major part. If it were expended for the prevention of disease, the cost of in-

sickness, which is a tax within itself, even though it is self-imposed, would be greatly reduced by the increase of longevity and the diminution of death-loss, humanity would be immensely and enormously benefited, and there would be checked in the State at large a fearful and surpassingly important drainage upon its most valuable resources.

In conclusion, permit me to repeat that life insurance companies, in my opinion, should give a financial and moral support toward the prevention of disease, and that such an investment would yield to them an enormously large rate, and thusly they would be extending their already great beneficiencies and philanthropies. Though they do not possess a soul, life insurance companies must be immortal to fulfill their purpose. They are founded on a humanitarian idea, and the prevention of human suffering, the increase of human happiness, the prolonging of human life, appeal emphatically to the purpose of their existence.

DIET IN TYPHOID FEVER.

By Edward C. Register, M.D., Charlotte.

Among the factors that we ought always to observe as guides, when dealing with this feature of a case of typhoid disease, may be mentioned its stage, the fever curve, the previous habits of the patient, his age, weight, the condition of his stomach and bowels, and to some extent, his feelings and inclinations. It is believed that a healthy individual, thirty years of age, weighing one hundred and fifty pounds, and remaining in an easy resting position, can be fairly well nourished for several weeks on five pounds of milk, or its equivalent, during every twenty-four hours. Assuming that this is true, what amount should the fever patient take?

For the last two or three years, several well-known observers have manifested a tendency to encourage the belief that a typhoid patient, in order to maintain a complete renewal of structure, should take this amount of food, or its equivalent, every twenty-four hours during the entire attack. My belief that this tendency is very likely to do harm, is the main excuse for this paper.

Until recently it has been almost universally believed that the average typhoid patient can take only about two-fifths as much nourishment, as is essential for a healthy individual. This has been my experience. To be more specific, as I have already indicated, the amount of nourishment necessary in these cases should be determined, certainly to some extent, by the age and weight of the patient. With only a few exceptions, the general principles governing the amount of medicine that the patient can take at the various ages are also applicable in determining the quantity of food that should be given. To illustrate: If a patient at the age of thirty, weighing one hundred and fifty pounds, can take without discomfort, two pounds of milk in twenty-four hours, during

the second week of the disease, under the same circumstances a child weighing fifty pounds can take about one-third this amount. Possibly children can take, without evidences of labored digestion, even more than one-third of the amount of food that would be proper for the more matured individual. Thus, if a young patient weighs seventy-five pounds, he can generally take more than one-half the quantity of nourishment that would be given the man of thirty years who weighs one hundred and fifty pounds. As age advances, certainly after forty-five years, the amount of nourishment necessary gradually decreases. I have found, without a single exception, that patients between the ages of fifty and sixty can not take more nourishment than a child ten years of age, and that the tendency to bowel disturbances on account of dietetic errors, seems to be much more common in these elderly patients.

The weight of the patient might be still further considered. If the muscular, well-developed man, who weighs two hundred and fifty pounds, at the age of thirty, has typhoid fever, it is generally known that he can take, with ease, and without discomfort, and without evidences of indigestion, twice the amount of food that a lady, at the same age, who weighs one hundred and twenty-five pounds, can take. It is also common knowledge among those who carefully observe these cases that a patient can take a great deal more nourishment when his fever is low than when it is high.

After the proper preliminary treatment, and while the fever curve is gradually ascending, a patient can, if his environments be satisfactory, usually take more nourishment than during the second stage of the fever, at which time the temperature is higher and there are fewer fluctuations in the curve. There is no doubt that there is a progressive weakening of digestion as the pathologic changes increase, and as the fever curve gradually gets higher. This circumstance is followed by a diminished secretion of saliva, and when the

temperature remains in the neighborhood of 105 for several days, with slight fluctuations, it is almost absent; really in many cases it is entirely absent. This makes mastication difficult and almost impossible in many instances. The hydrochloric acid in the gastric juice also rapidly diminishes in amount, as the fever rises; this, of course, fluctuates in amount as the fever rises and falls. In prolonged cases, where the fever continues very high, it is frequently known to be entirely absent—in this event large quantities of milk, or any other liquid food, is tolerated with difficulty. It is in this class of cases, especially, that most mischief is done when a liberal amount of semi-solid food is given, as is now so frequently advocated. I am certainly of the opinion that the apparent condition of the stomach and bowels should always be considered in determining both the quality and the quantity of food. If the stomach is irritable, and its motor functions weak, with a tendency to nausea, and possibly vomiting; or if there be diarrhea and tympanites, the quantity of food and also the quality should receive special consideration. When these symptoms are well marked, it is evidence in the majority of cases that the diet is defective, for it is infrequent that the pathologic changes in the bowels are sufficient to produce these symptoms.

The feelings or inclinations of the patient should be carefully studied also. There are certain articles of diet that might theoretically be very proper for the patient, and yet for some reason not be suitable. There are patients who will suddenly become nauseated when a certain food is even mentioned; yet it may be suitable and palatable in other cases quite as ill. In most cases, however, patients will take milk, with less objection or discomfort than any other form of food.

The belief among men that a continued high range of fever, greatly cripples the power of digestion is unquestionably correct, and it is with a feeling of regret that I so often see

statements that, in this disease, a continued high temperature does not materially interfere with the ability to digest a large amount of food. I believe that there is much that is unwise in this drift of opinion. Of course a very high temperature, when it continues for several days, or possibly for a couple of weeks, is not an indication that the patient can not digest food, or in some instances a considerable amount of food; but, as we have said, the lower the range of temperature, the larger the amount of food that can be given. Clinically it is easy to demonstrate that the higher the temperature, the greater is the tendency to bowel disturbances. Usually, and really in a large majority of cases, I believe this is due to over-feeding, or, perhaps I should say, improper feeding, rather than to pathologic changes in the bowel, for it has often been shown that the severity of these symptoms is a poor index to the anatomic changes that are going on within the bowel.

I almost feel like making the positive statement that, in the majority of cases, the pathologic changes that take place in the small bowel are infrequently responsible for the well-marked diarrhea, or the well-marked tympanites, or for the very dry coated tongue, or even the high range of temperature that is so often see in these cases. These prominent symptoms are nearly always due to too much food, or improper food. There is no doubt in my mind but that marked flatulence is nearly always associated with decomposition of albuminoids within the alimentary tract, and that this process creates toxins, which, if absorbed, are responsible for the very high range of temperature in these cases. I believe further that, with the proper diet and environments, the pathologic changes that take place in typhoid fever will seldom produce a fever of over 102 degrees. There is also no doubt that, in the majority of cases, when the temperature has a disposition to range above this degree, it is due to some kind of disturbance which is dependent upon dietetic errors, or

external conditions, and not upon the pathologic changes that are going on in that part of the body.

In dealing with this subject, the first question that naturally arises is: what is the best diet for the typhoid patient? Of course this is very difficult to answer. *We have no ideal food for the typhoid patient,* neither have we any one food that will suit every case, or that is the best in every case; consequently we have to select the food that seems to be most proper for the individual. *Speaking generally,* I am of the opinion that milk, in some of its forms, is the best diet. In fully 85 per cent of all the cases of typhoid fever that I have ever treated, milk seemed to be the best diet. In a few cases, milk, for reasons that I can not explain, does not seem to be suitable. In such cases, even very small quantities apparently cause stomach and bowel disturbances. However, the unprejudiced individual—the observer who carefully investigates the peculiarities of each particular case—will admit, that in the larger majority of cases milk is the best food, and that it approaches more nearly the ideal diet than does any other one substance. Even for adults, it contains all the ingredients necessary to sustain and nourish the body, certainly for several weeks at a time, usually without any evidences that it is a defective form of diet. There are other things that ought to be kept in mind, when considering the kind of diet that should be given in a case of typhoid fever. One is, that it should be easily obtained and easily administered. This is not an unimportant thing to be considered, certainly in a large number of our patients; for among the lower and middle classes of people, skilled dietetic employees are not available, and expensive preparations of food are not obtainable. When milk is given as a food it does not require an expert nor a chemist to determine the amount of nutritive products the patient is receiving each day. It is common knowledge that each quart of milk contains a certain amount of albumin (35 grams), a certain amount of fat (35 grams)

and a certain amount of sugar (45 grams). It is very difficult to mention any other food which we would be able to state with such a degree of accuracy, the amount of real nourishment that the patient is getting each day. If we were giving soups, broths, etc., it would be impossible to obtain this definite knowledge, except perhaps from the manifest effect on the patient. This would take several days, and in most cases the delay would be a very great disadvantage.

The main objection to sweet milk, as a diet in typhoid fever, is that it constipates, and that it is likely to produce bacterial decomposition, and indirectly diarrhea; that it is deficient in iron, and that possibly it contains too much fat; that it is not relished by patients, and that it is likely to produce large curds, which act as a foreign body, possibly blocking the lumen of the bowels. I take the position that the most favorable symptom in typhoid fever is constipation. If milk produces this state, which it unquestionably does in some cases, the circumstance is for the best. I heard a very eminent physician once say that he never saw a constipated case of typhoid fever die. Out of a thousand cases that have come under my observation, I have seen but a single exception to this rule. This experience does not differ from that of other observers. In fact the man who observes accurately is not uneasy when his typhoid patient is constipated.

It has been believed by many physicians that constipation in typhoid fever may cause bacterial decomposition and a subsequent diarrhea, and in this way increase the liability to auto-intoxication; but practitioners of experience who have carefully watched these cases do not hold to this opinion; because constipation is seldom, if ever, subsequently followed by a diarrhea; neither does it produce evidences of a toxæmia. There are physicians who object to sweet milk as a diet because they claim that it contains an excess of fat. This, however, is not the fact, certainly not if the milk is fresh, and the fat globules are uniformly distributed. Milk

several hours old, when the cream has become firm, if only partly or improperly shaken, is likely to disturb the stomach; but this is not the fault of the milk; it is due to the defective method of administration. It is occasionally mentioned that the iron in milk is not sufficient in amount. This really is inconsistent, because there is no condition where fever is a prominent symptom, in which iron is indicated. I should certainly say that the less iron the food contains the better for the typhoid patient. It may be suggested that milk is not palatable, that it is insipid, so it is. There are only two or three substances that taste natural to typhoid fever patients, viz: buttermilk, lemon water, or sour acids. Consequently milk is no more disagreeable, so far as taste is concerned, than any other diet. It is likely that the greatest objections that can be mentioned is the tendency to form large, indigestible curds, which in a few cases have even blocked the lumen of the intestine. In the majority of cases, really in nearly every case, this can be avoided if the sweet milk be properly given. There is no stage of typhoid fever during which an amount of sweet milk larger than 1-2 glass at any one time should be given. Of course, if this amount be sipped from a teaspoon these large curds will not form. Of course, if a full glass of milk be swallowed without taking the glass from the mouth, these curds will form. The fault is not with the milk, but with the defective manner in which it has been given. Whenever I observe clinical evidences that milk is not the proper diet in these cases, I find that it is nearly always due to the excessive amount given. The old method of giving a full glass of sweet milk to the typhoid patient every hour and a half, day and night, in order to keep up his strength, will certainly, in most cases produce diarrhea, tympanites and high fever. I found a great many years ago that if the quantity of milk be reduced to three quarts per day, the tendency to diarrhea was diminished. I observed that my patients were less likely to develop tympanites, suffer

less from pain in the stomach, and manifested fewer of all the other unpleasant symptoms. A still further reduction to two quarts in the twenty-four hours was attended by a further lessening of all these unpleasant symptoms. There is no question in my mind that, for a person weighing one hundred and fifty pounds, a half glass of sweet milk every three hours, given only when he is awake, is sufficient nourishment for the average patient. Several years ago, when my patients suffered with diarrhea, tympanites, high fever, irritable stomach, rapid emaciation, etc., I believed, as other physicians believed at that time, that it was due to the disease and the milk diet. Later, I concluded, and I still believe, that it was due to the quantity of the food, and not to the disease or quality of food that I was giving. If the physician is not careful, sweet milk is very often given in connection with sour lemonade, or when the stomach is excessively acid. Of course, under these circumstances, if milk is given hurriedly, large curds, that may be entirely indigestible, and which act as a foreign body will form. Decomposition may take place and cause diarrhea, auto-intoxication, and a high fever. Whenever this accident occurs the nurse is to blame, not the food. For a number of years it has been a habit of mine to combine sweet milk with some good lithia water. If this is done large curds are less likely to form, even if the stomach is acid, and the temperature curve high and uniform. If the milk is prepared in this way and given every two hours, it is seldom that we will observe evidences of indigestible curds. It has often occurred to me that the fear of the milk diet, on account of the tendency to form curds, is due to the pseudo-medical literature, written by advertisers of proprietary food products. Men who have made a study of this subject say that it is extremely uncommon in post-mortem examinations to find these cheesy curds in the intestine; and the common opinion is that whenever they are found their presence is to be ascribed to injudicious push-

ing of the diet. I do not want to be understood as advocating, without exception, a milk diet, although unquestionably milk should be made the principal food substance during the course of this disease. Occasionally a patient is seen to whom milk is extremely repugnant; in such a case there is no doubt that some other food should be given.

It is natural that more attention should be paid to the diet in typhoid fever than in any other infectious disease, on account of the bowel lesions. Clinical experience has taught us that this is thoroughly proper. Statistics prove that, while less than 1-4 of the deaths in this disease are due to hemorrhage or perforation; more than twice this percentage die from the severity of infection. This, however, does not change the prevalent belief that the exhaustive diarrhea, which is due to decomposition of indigestible products in the stomach and bowels, and which produce a mixed auto-intoxication, is the indirect cause of more deaths than any other one factor. I have often observed cases, in which it might appear that death was due to the severity of the infection, when it was really the result of a mixed infection, the origin of which has been mentioned.

At the London Fever Hospital, the largest of its kind in the world, milk is the principal diet in typhoid fever; and the death rate in that institution is quite low. Occasionally on account of reasons already suggested, they have resorted to the various kinds of broths and soups; only infrequently do they employ commercial foods.

For the last few years, it has become a habit of mine, in many cases to substitute sour milk, or buttermilk for sweet milk. In the majority of cases I find that it is more palatable, and many of my typhoid patients prefer it. Buttermilk, as an article of food in typhoid is not a new thing; its value has been known almost since the beginning of medical history, but it is only recently that we have fully learned to appreciate it as a food for fever patients. There

is hardly any substance that has as great a tendency to check putrefaction as has sour milk, and at the same time is so easy to digest, and gives us a food of considerable nutritive value. I have observed evidences of bacterial putrefaction in patients, to whom sweet milk was properly given, subside when the buttermilk diet was adopted. In cases where unfavorable symptoms arise as the result of an excess of fat in the sweet milk, the patient can usually digest sour milk. It is really in cases like this that it is especially applicable.

THE RATIONAL STATUS IN THE TREATMENT OF NOSE AND THROAT DISEASES.

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Allow me in the very outset of this paper to say that I do not wish to leave the impression on any one that I am more expert or less free from errors in the treatment of nose and throat diseases than hundreds of others who daily practice this specialty; but the points which I do wish to mention are such as have been learned from what I conceive to have been my own errors in diagnosis and treatment, and which I believe will not be too unimportant to bring before this Association.

Experience, while often a sad teacher, is nevertheless a highly important one. Through this source much information is acquired by the thoughtful physician which can never be obtained from books and periodicals.

Often have I gazed upon copies of that celebrated painting called "The Doctor" and marveled at the trueness to life therein depicted by the great artist. You all have seen it—the languishing child lying upon a couch of chairs in a room which betokens poverty; the family doctor, with his chin upon his hands and his expression that of earnest and deep meditation over the illness of the little one whose feverish form lies before him, and upon whose wan face falls the dull rays of light from the little shaded lamp upon the table; the mother's head buried in grief upon a near-by table, while upon her shoulder rests the strong arm of her tender husband, whose face, appealing and sorrow stricken, listens for the verdict from the bedside of his child.

Who is there that does not admire the wonderful experience and the intuitive knowledge of the old family physician?

What is it that tells him of the serious illness of some

little patient who perhaps is too young or even too feeble to make known his physical sufferings?

It is a knowledge he has derived from books, where diseases are discussed in clear, cold type? No, it is a knowledge which he can not explain to others, an intuitive understanding which comes from experience and observation.

And so it is that there are no diseases in any part of the human frame which can be treated successfully by routine methods as furnished by text-books, but which will be most successfully managed by the physician who studies minutely every case and combines intuitive and practical knowledge with that gained by reading and experience.

Progress in the recognition and treatment of all diseases is the daily history of medicine, and in no department is this truer than in nose and throat diseases. However, this advancement in nose and throat work has only been reached by those who have studied deeply into all their pathological conditions and have combined research and experience with practical applications.

The fact that every portion of the anatomy is dependent upon every other portion for the successful performance of its own individual function, must necessarily indicate how important it is for the physician to be broad-minded in his studies, and not practice with the idea that the portion of the body to which his practice is limited is a distinct entity by itself.

If I might be allowed a criticism, it is a fact that too many men enter nose and throat work without the proper preparation, which largely means that they have had no practical experience in the treatment of any other class of diseases. The laity itself is in much ignorance of this same point, for I have often been asked if a specialist also had to study medicine!

The specialist who thinks that with the triad armentarium, spray, cautery and knife, he is able to treat and cure all nose and throat diseases, will in a short time come to grief. There

is entirely too much treating of symptoms in medicine and not enough causes. It may seem odd for this statement to come from one who limits his practice to these diseases, but I honestly think that many a patient is to-day suffering from too much treatment. There is such a thing as overdoing matters, and the habit these days for people to have their nose and throat treated year in and year out, is producing troubles which before did not exist.

Not long ago a patient came to me from a distant city in Florida, and like all those who have the treatment habit, she was able to tell me exactly her nose and throat troubles before an examination was made. She had only a few days to stay in the city, but she wanted treatment. From her I ascertained that for the last three years she had been under constant treatment for her nose and throat. She was treated for weeks in New York by a certain well-known specialist. On her way home she had to stop in Baltimore because she felt the need of treatment. If she had not have been on a through sleeper to her home, I imagine that she would have been treated at intervals on the way. She reached home, and the specialist there continued to treat her three times a week. When I examined carefully the nose and throat condition in this lady, there was found only the dry irritative state of the mucous membrane incident to too much local treatment. "Madam," said I, "Do you wish me to tell you honestly the severity of your trouble? Then if you wish such a statement from me, I would say that you are suffering from too much local treatment."

This statement is no idle fancy of the mind, for I am firmly convinced that many people to-day are afflicted with the treatment habit. Several years ago I read a paper before the Georgia Medical Association on "The Use and Abuse of Nasal Sprays." With increasing years of experience, I am more than ever convinced that the spray habit is becoming a fixture upon many of the American people. A more per-

nicious habit and one that affects more disastrously the nasal mucous membrane can hardly be found than that of daily spraying the nose with some oily menstruum containing menthol. The "spray doctor" is even now spoken of and held in ridicule by the laity, for it does not take a Solomon to see that the specialist who daily calls "next" to the waiting horde of snifflers who fill his reception room, is covering up his professional ignorance with cheap explosion of compressed air. Nor must we forget, in this crying desire of the uneducated public to have their noses sprayed, that it is just in such a manner that cocaine habitués are produced. When a patient is obliged to go to a specialist every day from the craving desire to be sprayed, then the whiskey bloat is in no worse physical condition than is this same spray individual.

Specialists in nose and throat work must recognize the fact that local treatment is often secondary to the systemic. The man who daily treats his patients in an automatic manner, because when he looks into a nose or throat he sees certain objective appearances, must necessarily keep his patients coming to him indefinitely, for all such treatment will never be curative.

If the physician will study his cases thoroughly, and make a most careful examination at the beginning, it will not be often that a patient will have to spend a good portion of his time at the doctor's office.

Hence the intent of this paper is a plea for a more thorough and rational treatment of the various nose and throat diseases, and I may add a plea for local treatment only when such is needed. I wish also to raise my voice against such universal and indiscriminate use of sprays and prolonged course of treatment, which in many cases must destroy the physiological functions of the mucous membranes and stamp an opprobrium upon this recognized specialty.

How often have you heard some one say: "Well, I have been going to Doctor So-and-So for the last six months, and

I am no better now than I was before"? Surely there is some ground for such adverse professional sentiments as these, and it is our duty as physicians to deal honestly with our patients. It is this honesty which distinguishes the true physician from the quack, and because this patient is able to pay you a good fee is no reason why he should be kept under treatment when you know positively that his apparent improvement will last only so long as the treatment continues. There is not the physician living who does not sometimes make mistakes, for I have no confidence in such as do not, but I do believe that mistakes are often the result of the lack of thoroughness in the examination of cases. Other mistakes are sometimes due to a habit of routine practice, in using the same line of treatment for all cases.

Let us take some of the subjective symptoms so often complained of by persons who think that they have some nose and throat disease, and see just what pathologic conditions they might represent, and see how easy it would be to treat the same erroneously.

1. Take first pain, which is a subjective symptom of such prime importance to every individual.

In the nasal cavities proper this does not often occur unless there is severe acute inflammation or severe traumatism. In acute rhinitis, for instance, pain, when it does exist, is of the hot, burning character, producing more pressure and congestive neuralgia in the surrounding parts than in the cavities themselves. The membrane is over-sensitive, especially to cold air and a dusty atmosphere. For this reason I am fully convinced that it is illogical to allow people suffering with acute rhinitis or acute cold in the head to go out in the cold during winter and have the nasal cavities sprayed, thus affording double opportunity for more irritation of the mucous membrane. These cases belong to the family physician, and not to the specialist, as such need mild depletive measures at home if we would see the nasal mucous membrane return to its normal state.

Pain in the region around the nose is often indicative of some pathological condition of those cavities which empty their secretions through the nose. Pain on the side of the nose, radiating out to the cheek bones, is at least indicative of an antrum disease following an acute rhinitis.

Severe pain at the root of the nose, and a little external to the median line, especially if it be increased on pressure, is suggestive of a threatened abscess in the frontal sinus. However, pain as a diagnostic help in nasal diseases, is too uncertain to be of any material aid.

2. Take a second subjective symptom—that of sneezing. In acute rhinitis we recognize this as a part of the disease, and the congested irritative state of the mucous membrane would offer sufficient explanation for the frequency of this symptom. The old idea that whenever a person sneezed he was taking cold, has long ago been exploded, for there are too many local and systemic conditions which will produce this irritative explosion without necessarily meaning a cold.

There are some people who might almost be termed "habitual sneezers," and with these I do not class that numerous horde denominated as "hay fever and nose cold sufferers," who sneeze on the slightest provocation. With this class of patients it is the first thing they are conscious of in the mornings; they are guilty of it whenever they pass through varying intensity of lights; the passing from a cool atmosphere into that of a warm room will cause it, and even excitements of various kinds must be reckoned in the same category.

How foolish then to treat this symptom alike in all individuals! It would extend this paper to an unpardonable length to go into any minute details, and I shall only mention some of the causes of this symptom, and then you can see how necessary it is to study minutely every case if you wish to treat the same successfully.

(a) There is a class of people who have what I have denominated as hyperesthetic rhinitis. If you will examine the

nasal cavities of these individuals nothing abnormal will be discovered, and yet they will have spells of sneezing. If you will touch the mucous membrane in these cases you see its extreme sensibility.

This condition I have most often found in neurotic individuals, and in those who do not take enough out-door physical exercise. Local treatment is almost valueless, and results will be best accomplished by close attention to hygienic laws and careful building up by the family physician.

(b) There is another class of cases where the nasal cavities will show nothing pathological, and yet by further careful examination such will be found to have a marked uric acid dyscrasia. The blood is loaded to excess, and the nasal and naso-pharyngeal mucous membrane is constantly irritated. Think of spraying such an individual for the relief of his nasal symptoms!

(c) Then again we find those suffering with this symptom, where a superficial examination of the nasal cavities reveals nothing abnormal, and yet by closer scrutiny and shrinking of the membrane we discover a polypoid condition of the mucous membrane at the posterior end of the middle turbinate, and perhaps even a small polypus itself. Here is the focus of irritation, to be cured only by operative intervention, and yet too often have they already become the victims of the spray habit.

These are some of the chief causes of the symptoms referred to, and yet none of us would be contented with even such a limitation.

3. Take another common subjective symptom, that of stenosis or stoppage of free respiration through the nose. Here it is that the unskilled and inexperienced get in their deadly work. The tissue covering the turbinate bones, as we well know, is known as erectile tissue, such as swells and shrinks according to the amount of blood which it contains.

The most usual cause of nasal stenosis is a swelling of this tissue over the turbinates. This swelling and consequent

blocking of the nasal passages, may be due to either a true hypertrophy of the stroma elements of the membrane itself or a swelling due to a stasis or an engorgement of the erectile spaces through the determination of more blood to the parts. If due to the latter the mucous membrane will shrink entirely under the application of cocaine, and if to the former the hypertrophic condition will still manifest itself. The treatment of these two conditions must necessarily differ, and here it is that the successful rhinologist has been benefited by keen observation. Reduction of the membrane in the first instance, by means of the cautery, snare and knife, is frequently justifiable, but in that due to stasis, we must first seek the cause of this condition if we would have permanent successful results.

Take an instance of the latter of the man who imbibes freely at night, and even during the day, and often eats inordinately. Every morning he suffers with nasal stenosis. But shall we cauterize or snare such a mucous membrane? Certainly not; open the bowels freely, stop the pernicious mode of living, and the nasal stenosis will take care of itself.

Dr. H. J. Mulford, in a very practical article, has called attention to the importance of urinalysis in the proper treatment of nose and throat diseases. He has shown, by reporting several cases, that the condition of the kidneys was in a large measure responsible for certain changes seen in the nose and throat, and which entirely disappear under systemic treatment. The specialist who is successful in his practice is the man of broad observation, who looks beyond the narrow confines of the organs which he daily treats, and remembers that the whole animal economy is involved in the successful function of the smallest portion of the human frame.

4. Take now an objective symptom of nasal trouble, that of a discharge, and let us see how unscientific it is to treat the symptom and not the cause of the symptom. Many a nasal cavity is daily sprayed for a discharge from the same,

without any reference as to where it originates. When we remember that a discharge from the nasal cavity may have its origin from the maxillary antrum, the frontal sinus, the ethmoidal cells, the sphenoidal sinus and from a diseased condition of the mucous membrane itself, one can readily see that such may be a symptom of various pathologic conditions. Hence, for this reason, a most thorough examination is necessary whenever a patient consults the physician for the relief of a catarrhal discharge from the nose. Time does not permit me to mention the signs and symptoms which enable one to make an exact diagnosis in such cases, my main object being to call attention to the manifold origin of this one symptom.

During last winter I saw several cases where an attack of the grippe was followed by an abscess of the sphenoidal sinus. Ordinary treatment failing to effect a cure was the reason why they were sent to a specialist. The symptoms in these cases were almost universally the same. Intense pain in the top and back of the head—a feeling as if the head was tightly constricted in a band—pain worse in the early morning hours; a muco-purulent discharge from the nose at intervals. Objective examination showed an engorged mucous membrane. By shrinking the tissues with cocaine on a cotton applicator, the source of the discharge could be seen coming from a point high up at the posterior end of the middle turbinate, frequently running down along the posterior portion of the septum. By contracting still further the tissues around the opening of the sphenoidal sinus, drainage was established in the natural way, and in a few moments the patient would experience relief. By using exactness in the drainage, these cases recovered in a few days, and by recognizing the source of the discharge one could treat it intelligently and at the same time quiet the patient as to the prognosis.

The habit of using and prescribing sprays indiscriminately is a most pernicious one, and such should receive more thoughtful consideration than has heretofore been the case.

Take another common symptom, and that is the continual dripping of mucus secretion into the naso-pharynx, producing that annoying condition of post-nasal catarrh. In the large majority of cases this secretion comes from the mucous membrane of the nasal cavities, but there are many cases where it is due to the secretion coming from some one of the neighboring cavities or from a diseased condition of the naso-pharyngeal mucous membrane itself.

Therefore, we can readily see that if the source of the secretion is not located, satisfactory results in the treatment can not be obtained by the ordinary use of sprays and douches. There is a distinct disease of the naso-pharynx, known as chronic naso-pharyngeal bursitis, where the pharyngeal sac or bursa has become chronically inflamed and pours out continually a tenacious mucus. Patients suffering with this condition will complain of expectorating once every twenty-four hours a distinct scab of mucus, usually dry on one side and moist on the other, where it has been lodged in a depression over the pharyngeal bursa. On inspection with the post-nasal mirror one may readily see the depression in the center and a small opening leading into the bursa. Such cases are very unsatisfactory to treat, because you can benefit, but seldom cure. It is certainly honest, therefore, to recognize these cases and tell the patient in the beginning what he or she is to expect, and not have them to become disgusted because they seem to be getting no better. I am firmly convinced that cases of this character are frequently wrongly diagnosed.

Time does not permit me to extend this paper, even though there are many other common conditions of which I might speak, and which are too often overlooked by the busy specialist. Conservatism and rational treatment of the nasal mucous membranes are gaining their adherents every day. Specialism too often causes us to be narrowed in the horizon of our clinical work, and too infrequently do we stop to con-

sider those broad principles of medicine which should be utilized in the management of every case. There are many workers to-day in the field of rhinology who would have us treat the nasal cavities as we would a mathematical proposition—to be governed by fixed and invariable rules for treatment. They would teach the student of medicine that there must be a fixed diameter of these cavities, to be made so if necessary, by wholesale destruction of tissue. They seem to forget that the divine Creator never made a perfect man, and we might say perfectly proportioned nasal cavities.

This aggressive treatment of nasal diseases is much to be deplored. I mean by aggressive, such things as the too frequent use of the electro-cautery, the operative intervention for every anomaly which prevents the nasal chambers from being mathematically correct in their proportions, and last, but not least, the daily use of sprays, which is unscientific and the producer of an exceedingly pernicious habit. In a recent address, Dr. Chas. H. Knight, of New York, has most happily expressed my own views on this important subject. He says: "In consequence of this rhinological enthusiasm, the nose has been looked upon as a probable source of every human ill, and a ruthless slaughter of intra-nasal structures, without regard to their physiological functions, has been universally practiced. Happily a saner view is coming to prevail, and the belief is growing that epilepsy, asthma, dysmenorrhea and arthritis of the knee may have other causes than a hysterogenic zone or a point of pressure within the nasal fossæ."

THE DETECTION OF MALINGERING IN CASES OF FEIGNED BLINDNESS OF ONE OR BOTH EYES.

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A medical man is frequently required to testify concerning injuries and effects of injuries sustained by railway employees and passengers in accidents. He is obligated professionally and morally to both litigants; to the prosecutor, who claims to have been injured, who probably is or has been under his professional care, and between whom and himself exist that mutual confidence and fellowship that can only obtain between physician and patient. He is no less obligated to the defendant, the railroad company, whom he serves, and who depends upon him for statements of fact and opinion. He must give an unbiased opinion concerning the injury, its direct and probable remote effect upon both adjacent and distant organs, and the exact degree to which their functions have been impaired; and to this end he should be able to detect malingering, which, as numerous court records show, is often practiced.

It is necessary to carefully differentiate between simulated and hysterical amblyopia. The latter is most frequent in girls and young women, usually unilateral, and is characterized by contracted field of vision. Color blindness and reversed color fields, varying degrees of diminished vision, scotoma, hemiopia, photophobia, ptosis and blepherospasm are frequent symptoms. Other symptoms of hysteria may aid in the diagnosis.

After noting the family history, the previous and present history of the case, and any discrepancies and inconsistencies which may occur in the pretender's claims and story, a thorough objective examination with ophthalmoscope and skias-

copy should be made in each case before subjective tests are resorted to. This will enable the examiner to determine any ocular disease or abnormality and any refractive error present, which may have a bearing on the symptoms.

The many reflexes to which the seeing eye responds are unfamiliar to the average malingerer, and although he may be learned in physiology and ophthalmology, he can not pervert these functions voluntarily, since their action is involuntary and unconsciously performed. An example is the action of the third or oculo-motor nerve on the pupil—the pupil reflex to light. This reflex, while not absolutely trustworthy in every case of amblyopia, can be relied on in all cases save where the lesion is in the third nerve center in the cortex, or between this and the corpora quadra gemina, known as Meynert's fibers. The light reflex then excludes blindness from any lesion or cause within the eyeball, in the optic nerve, optic tract or corpora quadra gemina. It would also exclude a lesion anywhere along the third nerve. In advanced cases of locomotor ataxia, we have an example of a disturbance affecting the light reflex, yet we know that the third nerve is intact because of the convergence contraction which is present. Moreover, then, if light reflex is present we have strong evidence that the eye has vision, yet the reflex does not absolutely prove vision, nor does its absence definitely determine blindness.

The most trustworthy test for simulated blindness was devised by Snellen, consisting of red and green letters alternately placed on a glass with a black background, the subject wearing a trial frame in which are placed a red and a green colored lens. The red letters are visible only through the red lens, and the green letters only through the green lens, because each lens obstructs light from the letters of its complementary color and transmits light from letters of the same color; consequently, if he reads all the letters he is blind in neither eye. If he reads the red letters only, he may be

blind in the eye behind the green glass, and conversely, if the green letters only, he may be blind in the eye covered with the red lens. The letters should be large enough to be seen by an eye having a vision of 20/100, to exclude a possible error in the test due to an ametropia. If the refractive error is at all considerable, it is well in all subjective tests to place the correct lenses determined objectively by retinoscopy over the alleged amblyopic eye, and a card with test letters becoming successively smaller may assist in determining the vision in the professed amblyopic eye.

Taking advantage of the fact that binocular single vision precludes diplopia, and that diplopia immediately induces a coordinating yet perhaps unconscious effort to eliminate itself and obtain binocular single vision, Priestly Smith devised what is known as a diplopia test in which a six degree prism base out, is placed in front of, preferably, the admitted seeing eye, which will, if vision is present, turn inward far enough to fuse the images and correct the diplopia. This the subject does unwittingly, of course.

Another valuable method may be known as the monocular diplopia test. The subject is placed twenty feet from a light in a dark room, and sitting in front of him the examiner covers the alleged blind eye with the hand and holds a prism over the other eye in such a way that its edge passes over the center of the pupil. This will cause monocular diplopia, showing two lights, one through the prism and one without it. After the subject has become accustomed to seeing two objects with his one good eye, the prism is advanced over the pupil and the other eye uncovered simultaneously, when if both eyes see the diplopia will still remain.

If a strong convex sphere be placed in front of the good eye, obscuring vision beyond its focal distance and a minus quarter diopter sphere is placed over the amblyopic eye, not affecting its vision, the subject may be induced to read print, using the alleged amblyopic eye, yet believing he is using the normal eye.

A plus and minus cylinder of equal strength and parallel axes neutralize each other and may thus be placed before an eye without affecting the vision, but if their axes are placed at a considerable angle the vision is blurred to a degree depending on the strength of the lenses and their angle of divergence. By using a plus two diopter cylinder with a minus two diopter cylinder with parallel axes before the subject's normal eye, he immediately discovers that his vision is unaffected. In the course of the manipulation the axis of one of the cylinders is changed 50° or 60°, after which if he is able to read the test type he does it with his pretended blind eye and is malingering.

Printed words and pictures may be so made and placed in a stereoscope that a part may be seen with each eye, but the whole only with both eyes, and his ability to read the word or describe the picture correctly is sufficient evidence of his pretentions.

A drop of atropine in the normal eye will in a short time paralyze the accommodation, and if myopia be excluded, obscure near vision. This inability to read may not be detected by the malingerer if he be kept in a dark room, and if (as a placebo, a drop of boric acid may be used in the alleged blind eye at the same installation) he may be induced to read, he does it with the unatropinized eye and is malingering.

Another means which has been used is to place the patient under an anesthetic, and as he recovers note the action of the eyes and evidence of vision.

Blindness in both eyes is so difficult for the subject to simulate that he is usually deterred from such claim, and takes recourse in either blindness in one eye or impaired vision in each. When total blindness of each eye is claimed, carefully watching the patient will suffice to detect his feigning, but the diplopia test is equally as trustworthy as in cases where monocular blindness is claimed. Where weakness of vision and not blindness is claimed in one or both eyes, the vision

should be taken with various test types at various distances, and the acuteness of vision should remain the same if his vision is really imperfect, but if he is feigning there will be discrepancies in his answers.

In the foregoing tests the best are those which aim at excluding the seeing eye from the test without the patient's knowledge, and inducing him to believe that what he really sees with the "blind" eye, is being seen with his "seeing" eye.

The malingerer finds in the eye an organ well adapted for his deceptive purpose; for he reasons, "Who knows, save me, whether I can see in this eye?" Nevertheless, feigning amblyopia successfully is far more difficult than is detecting the deception. There is something indefinite but abnormal in the general demeanor of one who is lying or practicing a deception which is apparent to the experienced student of human nature. It is noticeable in the consultation; it pervades his demeanor on the witness stand, leading him into the net of contradiction; and all this notwithstanding he may have carefully tutored himself in malingering for months.

THE PLAY IMPULSE AND PUBLIC HEALTH.

By W. A. Lambeth, Ph.D., M.D.
Professor University of Virginia.

"And I venture to think that it is not enough to get proper nurture and training when we are young, but that we ought to carry on the same way of life after we have grown up, and confirm these habits."—Aristotle, Ethics X, 9, 1.

From the moment of birth when the infant is quieted by the pleasure of a motor impulse in grasping the finger of its mother, to the time in adult life when he is thrilled by the successful performance of some great motor contest, his body is a sensitive barometer in which are registered the delicate but exhilarating impulses of play. While these motor play impulses are evanescent, flashing with lightning-like rapidity, each one leaves its imprint—traces its route in faint but indelible lines upon the sensitive plate of the tissues. In a big sense life is a game and the world a great play-ground in which men, who are after all only grown-up children living a grown-up life, are playing a grown-up game. The rules of life's game, which have become somewhat formal, in which the rights of others have become correlated with one's own freedom, are nothing more than the rules of children's games who as they play become conscious of the rights of others in the defense of their own. Educationally we are all agreed as to the value of the play instinct in the preparation for the higher sociological and ethical duties, but still another proposition says that the play impulse is equally useful biologically. The young man who has grown up as his mother's book mark or as a pendant to her apron strings is not best fitted to comprehend or cope with the requirements of life as expressed in social or business laws. So likewise the child who grows up, unconscious of and unstimulated by children's contests which are the expressions of the play impulse, finds himself unable to measure up to or overcome the physical de-

mands made upon his constitution. The instinct of play is planted within us as a guardian of our organic needs. Not only is this true of the individual child but also of the race. Whenever and wherever in the child this instinct is absent or undeveloped, in the same ratio we shall find effeminacy, inefficiency and possibly degeneration, so likewise when we find these conditions in a race, history has accorded the same sad end, and vouchsafes a prediction that the future will present no exception. An over-highly-wrought civilization tends, by the very virtues it brings in other ways, to minimize and obstruct the outflow of the play impulse; the time of youth is shortened in the bustling hurry to enter the big game of life; the effort is made to minister to the brain only, for time is not to be spared to minister to the whole body. And yet the boy-intellectual is only a small part of the whole boy—he's a very little brains and a whole lot something else. Conflict of schedules tends to result always in taking the time from the whole boy and allotting it to the boy-intellectual. We teachers, most of us to be sure, are a fairly intelligent lot, but we are prone to grow dogmatic and to imagine we can teach a boy something, whereas if we are not careful we not only fail to teach him ourselves but are apt to prevent him from teaching himself—for certainly nothing is truer than that we can not teach anybody anything; we can only direct his course of study—point out the straightest paths to the goal of partial or universal experience.

Just at the present moment athletic games and college games in particular are being raked over the fire of criticism. Criticism has in fact become a fetish. Some of this criticism is fair, tolerant, sympathetic, and helpful and is justified by attendant evils. Much of it, however, is the loud voice of ignorance which now as in all times has been the source of supply for all fetishistic worshipers; it is unjust and unwarranted by facts, intolerant and destructive in character and generally rooted in prejudice, envy or malice. Any good

which comes of criticism will not come from that class, but from high-minded educators, moralists and humanists who are now demanding and will forever demand all the facts before pronouncing judgment; and we may be sure that the harmony of their voices will continue when the blatancy of the herd will have ceased to grate upon the ear. Unfair criticism too is usually found in those who were unfortunate enough to have been born without the play impulse or to have quickly dwarfed it. The play impulse is universal, being shared by the kindliest, most useful and intelligent of the lower animals; its tendency is broadening so that a man developed under its influence will, if not certain, withhold judgment.

A chemist can tell us of quantitative and qualitative changes in matter; an astronomer can predict eclipses; a physiologist can explain to us the processes of digestion, but the more proficient they become in performing these offices, by the very nature of things, the less competent they become to give advice upon others. When we find a specialist who persists in directing all other human interests we are not disposed to regard him as the best product of his own profession. Specialization is one of the penalties of advancement; we admire and sympathize with those who are willing to surrender their prerogatives in general in order that they may advance the particular. Yet he should be made to remember that in the other spheres of life he has abandoned claim to critical ability. Athletics are for adults only a further development of the child's rolling the hoop to which have been added rivalry and competition. So in the same manner life is a further development of athletics with the addition of those disciplines of self-preservation and self adaptation, of one's own best interests, to the laws of society which have a due regard for the rights of others. By activity his muscles grow bigger and stronger, and he becomes skilled in their use. He now of necessity forges ahead of some yet always forced to

follow others, he is made conscious of his responsibility for those weaker and younger and responds more readily to the authority of the older and stronger.

This is the time he unconsciously makes the delicate adjustment which subordinates the animal boy to the virtues of a manly citizenship. His consciousness of freedom is evolved out of a complex of experiences; when he flattens Bill's nose in an open contest, when he downs Jim with a fair hold and jumps about five feet high he finds his liberty and is ready with a definite purpose to seriously enter upon the pursuit of duty.

To the motor impulses which are admittedly educational and health-developmental we, who are interested in health and longevity, should add with emphasis the psychological and biological influences. The pleasure of muscular activity in motor contest serve to distinguish between the exercise of play impulse and doing work—performing muscular labor —this psychological-emotional feature if you like serves also to differentiate the results of play and formal developmental exercises. We prescribe horse back riding, sea bathing and tennis rather than ploughing, ditching or sawing wood, because we know the former has that in it making for good that the latter does not possess. We thereby acknowledge that the good results found in exercise can not be measured by the number of foot-tons of work done. To get the results desired we must secure that other element, the psychological element which can not be measured by rule and balance. The unfortunate man who is forced into a vacation which does not supply or permit him to secure a sufficient amount of motor activity of a pleasurable character is sure to suffer inanition and diminished power; and even though he may not consider himself sick he will be a less happy and less useful and productive unit of society. The American boy who pulls at the neighbor's door bell and scampers away bears testimony to this assertion, he's just got to have a little game which uses his play impulse, a little game which offers a contest with a

chance of winning. He would just as soon pull at the lamp post if only the lamp post could give him a chase. Accepting the theory of evolution, we have so far become physically great not by any intelligent organized aid we have rendered ourselves, but in spite of all the abuses and neglect to which we have subjected our bodies. But now in the full possession of experience, intelligence and foresight which, if we fail to apply, we shall be held culpable in the sight of the maker of laws of evolution. This assembly of scientists whose business and pleasure it is to care for the public health and who are thereby guardians of the happiness and prosperity of mankind, will not lightly regard any proposition as far-fetched, over-strained or irrelevant, that can be sustained by the same reasoning that impels you forward in stamping out the slimy trail of typhoid fever and even now forces you onward to threaten the stronghold of the "Great White Plague." You will not pass unheeded the cry of *all* mankind when you halt so quickly and minister so tenderly unto the *few*. The unnamed malady and its damages of which we speak exerts its unobstrusive but baneful influence continuously. It stands at birth's door and greets the entering soul, follows and sometimes leads the unprotected offspring through life, long or short, in order to be present at and precipitate the end. We have unfortunately proceeded so long upon the assumption that we have a fixed standard of health and longevity, by which we can measure men, that it is with difficulty we accept the relativity of such standards which are at best arbitrary and fluctuating. This standard amply seems to measure those who fall short, for it points out a distance yet to go, but how about those who are above it? Shall we regard them as abnormal and adopt the most popular tenet of Socialism which requires that all above must be leveled down to those below? What about him who just measures up to the standard—neither greater nor less? Is he to bask in self-satisfaction and put one of God's patterns away to rust? Would he

not rather strive for even greater health and more extended longevity? Of the two classes which our standard discloses those who are unhealthy are best provided for by those who minister unto the diseased, but the healthy class are neglected and unfortunate in being lulled into a sense of false security and made to believe that they are finished. So, therefore, it is the cause of the unfortunate neglected healthy which we plead before you. Can not even he be made healthier still, can not even he be given a greater expectation of life? To argue otherwise is to dispute the evidences of design in nature, and all the biological laws which science has announced. By what authority do we consider the pulse rate fixed forever? Is the man whose vital functions proceed so easily that he is unconscious of internal organs to be forever regarded as perfect without hope of further improvement? We think not. We rather think that the healthiest man on earth could, under certain conditions, be made healthier still. And if we could add a single second to the length of life of every man yet to be born, the sum total compressed into the life of one individual would suffice to project a mortal man through eternity; and if we could abolish only a single pain from every man yet to be born and subtract the same from the sum-total of the pains of the projected mortal, his life would be as blissful as it would be infinite.

By what character of reasoning do we conclude that one form of exercise is violent, another form moderate—are not these also relative terms arbitrarily established? That which is violent for one may be moderate for another; that which is violent at one time may be moderate at another time in the same individual. Are we not justified in hoping that by care and intelligent progressive training that which is regarded as a man's task now may eventually be performed by a boy? To doubt the principle is to put discredit upon a large body of scientific men who have established this necessity in any complete scheme of education. Dissertations warning us of the

dangers of overtraining are well meant and sometimes needful but just at present what we most need are dissertations calling attention to undertraining. Statistics abound justifying the latter, but we are aware of none which justify the former. To be sure there is danger of an individual overtraining but the danger of the multitude's undertraining is still greater. The basic principle of public health implies the greatest good to the greatest number. There are individuals in whom the smallest amount of butter acts as an intense poison. Do we because of an individual's unfortunate idiosyncrasy restrain the use of this important food in the ten thousand to whom it is the most nourishing and agreeable form of fat? Instead then of repressing this impulse we should encourage its expression. Negation has its value in the play impulse as in all things else and while it is a virtue—a negative virtue to be without vice, what a boy needs most is the possession of positive virtues. A quiet little boy may be a good little boy, but by the same philosophy he could be made a much better little boy by the administration of the proper dose of chloroform. The medical profession began in Esculapius in the treatment of the ills of the flesh, recently it has segregated itself into two groups, one retaining the functions of Esculapius and treating disease in those already attacked, the other endeavoring to defend the healthy from the onslaught of disease, and now may we not hope to go a step further in the segregation of still a third group whose business will be to accentuate health? Now we have medical physicians and medical sanitarians, then we shall add to these a third,—medical biologists.

This human kid if a "curious" animal, he's a bundle of live wires,—a zix cylinder high tension seventy 1910 model. He's full of life's surging force, a regular little Vesuvius in action. If he's given free vent but intelligently directed the cone he builds will be symmetrical and complete, if unwisely restrained the shock of his explosion will not end with his

own destruction only. Let us give him then a whole experience, give him fresh air, pure water, wholesome food and a little chance at "learning," for he should be busy every moment in the making of a man. Too frequently, impelled by a pardonable dogmatism, we hem him about with needless restrictions which serve only to cramp his development; we interfere with or make a mess of a process the workings of which are directed by the Great Teacher of all.

This American kid for whom we plead then is not a weakling, a degenerate kid—"born short," he's a bigger, stronger, and better kid than his father was, and is going to be a better man than his father is; George Washington and Thomas Jefferson in a contest with him would be strictly "up against it." There is no sign that he's going to be lost in the scramble. His pioneer forefathers were great, strong men, whose play impulses were whetted by a contest with unsubdued nature; a struggle with the wild beasts and the American Indian, in forcing the forest to surrender to the plough, the fields to yield up their crops and the mountain to disgorge its hoarded treasure of iron and gold. They were at play in the big game of life. The making of a great nation was only an incident in the making of a man. The game he played developed far-sighted wisdom, intrepid valor and tireless energy. We repeat then that we are not pleading the cause of a degenerate, but the advancement of an improved product, one who comes from the loins of a people who had established the habit of "getting ahead in the world." Now when in the changed conditions opportunities for primitive contests are gone the offspring will be impelled by his play instinct to provide himself with artificial ones of his own. Of course the boy knew better than to pull the neighbor's door bell, about a quart of Father's Strap Oil—"good for man and beast"—applied externally with friction might have improved his manners without dwarfing his play impulse, but none of us, perfect as we regard ourselves, are so much

what we have as what we do, nor are we guided so much by what we know as by what we feel. He felt the need of a little game,—a contest, and unwise or improper as his choice may have been, he's a better boy for having chosen. A fourteen-year-old street urchin dressed in 20th Century frills and furbelows may be an appropriate object as a source of immediate pride to exhibit at Mama's Wednesdays, but such a spectable is scarcely pregnant with future hope. Civilization of to-day offers little opportunity for free development of play-pleasure. Such opportunity should be provided for surely the love of enjoyment is stronger than the love of vice and if given an equal chance will strangle the lust of it.

From the grist of the public school the rank and file of the next generation must come; the small percentage who reach the institutions of higher learning find prepared for them organized play; but the great army of our citizenship is still restricted to the use of back alleys and vacant lots, where they remain conditioned by walls of brick and stone or the squalor of briars and ash-heaps. There is a law in England that requires every public school to provide thirty square feet of unobstructed playground for each child in attendance—contrast this with the public schools of your own town or city. In books and laboratories we supply indispensable equipment for intellectual training, but do we adjust the work to the needs and abilities of the child? Why we have reached the point of enlarging upon the principle of "research" and "modern study" even in the high school. Children are set about to find the new life before they have found the old—the one they must live. The very term research has been surrounded so long by a halo that few tarry to interpret its meaning. We seem to regard it as some new principle just discovered, the patent-rights held by a favored few who are profoundly changing the character of education. We seem to think of it as something of which we have been heretofore entirely ignorant. What, mankind has bathed in, eaten

the bread of, and dreamed "research" since the first man, for was not Adam engaged in research for universal knowledge when he bit that sour apple?

Besides provision of adequate playgrounds for our schools we should provide adequate instruction in the child's activities. We do not build and equip laboratories in which to turn the student loose to browse. We direct his studies and experiments in a systematic manner. We put in charge a devoted and specially trained teacher. In the same way we should direct the activities of the playground. We should secure one trained for this specific purpose, one who knows how to enter into and direct the play impulse all the way from making sand pies to playing our national game of baseball. To be sure for purposes of economy it may be possible for this specialist to render other service in the curriculum, but it should always be held secondary to his real work. He should be employed to direct the playground and perhaps allowed to teach algebra, but never employed to teach algebra and permitted to instruct in the games.

We claim no originality in pleading for playgrounds—and playgrounds properly directed, for the principle has been established in reformatories, prisons and some industrial schools. Is it not possible for the members of this Association to bring the matter before the school boards of your home cities and towns? Is it not of sufficient interest to the claims of public health and closely enough related to sanitation and medicine to secure the support of this organization?

We do not offer the play impulse as a panacea for all the ills of life but as a principle which promises much, yet a principle which in a too serious and material life is likely to be neglected or overlooked altogether.

When equilibrium in civilized development is once attained, when every man who escapes accident may reasonably hope for a ripe old age; when death shall come from a uni-

versal cause it will be when all who enter the world shall find prepared for them the opportunity and equipment for the exercise of the play impulse; when he who reaches maturity will continue by choice and as a matter of course, the pleasures of play. It will be when he who has entered upon life's duties, will be girded about with the weapons of play and sheet-armored with a constitution inherited from those who believed in play.

With these weapons he will be able to subdue whatever enemies challenge his advancement, with this armor he can defy all lurking dangers.

THE LEGAL AGAINST THE MEDICAL PROFESSION.

By J. M. Templeton, M.D., Cary.

(The influence of a life or effect of an act may be temporary or may go on down the ages. John Hampden's patriotic resistance to tyranny nerves the arms of the friends of liberty in our time. Napoleon's tactics are recognized principles of modern warfare, and there are still Martin Luthers who nail theses on our church doors. The political ethics of Machiavelli tincture the statesmanship and diplomacy of the 20th century, and Arnold's treason and Judas Iscariot's base ingratitude are part of the common heritage of mankind, and such men and such acts are always fit subjects for discussion.)

The Biggs decision marked an era in the history of medicine in our State for with it has come the bone setter, the Christian scientist, the absent healer and other isms and pathies that had long cursed the profession in other sections, but from which we had heretofore possessed a happy immunity. This decision may be based on good law, but it is couched in terms and manifests a spirit that even red hot partisan politics rarely arouses, and an abler exaltation of ignorance and extolling of incompetency while decrying intelligence and discounting ability, is not often produced from any source. We knew when a man came to our State to practice law, or pilot ships, or fire steam boilers, the government looked into his fitness to do these things. We thought we had a law covering the practice of medicine in the same way, but this decision would indicate that it all depended on whether or not one uses "drugs and the knife." We thought our law provided a systematic, orderly method of entering upon the business of treating the sick. Let a man prove his competency to do this, and no one cares whether he practice drugless healing or with the bloodiest of knives, whether he

uses hot or cold baths, ginger cakes, a galvanic battery, boiled onions or prussic acid, yet from this decision one might infer that our medical law was enacted only for those who use drugs and the knife in their practice.

There is not a man among us regulars but what treats numbers of cases every year without "drugs or knife," some of us "rub 'em and set bones," but we don't go around blowing about it, claiming it's a newer and better way than any other, playing upon the ignorance of the laity, for the money there is in it. When a man comes here and sets up to make a living by treating the sick—whatever his methods or tools—he's amenable to some one, somewhere, otherwise any fellow who neglects to use two or three of our remedies and rejects the others might claim immunity from all law and want the sick and diseased of the whole commonwealth turned over to him because there is no board provided composed of men who follow his peculiar method of treatment.

Where there is no specially built board to inquire into such an one's fitness for this work, reason and common sense (and if the law is contrary to those so much the worse for the law) say the board regularly established to examine those who make a business of treating the sick is the proper body to take him in hand.

It is an insult to the gentlemen composing the board to say they will reject him or treat him unfairly because he proposes to practice a specialty. Don't Royster and Knox and Battle and Whitaker and scores of other regulars practice specialties? but they make no claim to being too good to stand an examination on general medicine.

Why even lawyers practice specialties, many fitting themselves for the practice exclusively of criminal, commercial or corporation law. Now would any court in christendom hold it unconstitutional for a board composed of general practitioners of law to examine an applicant who expected to limit his practice to criminal or corporation law, or that such a board would not do him justice?

It would be as consistent as to say it was unconstitutional for a board composed of general practitioners of medicine to examine a candidate who proposed to confine his practice to agencies we all use, viz: "baths, massage and kneading the solar plexus"—agencies the decision harps upon as being harmless, and being harmless methods it quotes precedents to show that the exercise of the police power has its limitations, and yet other decisions to prove that we may not interdict occupations harmless within themselves.

I have been wondering who authorized the Tar Heel Supreme Court to decide that "baths, massage and kneading the solar plexus," were harmless procedures. So they perhaps are in the healthy subject, but this was a case where it was proposed to deal with pathological conditions. Now every physician knows there are forms of heart disease in which baths are to be used with caution, reasonably careful M.Ds. have sent patients to the "glory land" by too heavy massage of a distended pustube.

I recall a case of appendicitis in which I had more than a suspicion that rupture was precipitated by a too vigorous "rubbing of the lump" by an officious relative. Eminent authorities caution against massage in certain chronic affections, such as cancer, lest the germs be disseminated into healthy tissue, and he who would use it in phlegmasia alba dolens for instance, with a knowledge of the increased danger, would be foolhardy indeed, so what seems so harmless to men learned in the law may be known to be very dangerous to the well posted medical man, and less learned men than our judges might have investigated a little before being so "cock sure" of their position.

Again, a thing harmless in itself may be overdone even in the practice of law.

I have heard that upon one occasion Vance was opposed by a lawyer who presented his side of the case in a stentorian voice, with fiery vehemence and a wealth of sledge hammer

gesture. When he finished Vance rose to reply and without opening his mouth went through a most wonderful, varied and violent form of gesticulation, making exclamation points in the air, contorting his face, twisting his body, then resuming his seat he said that was his answer to the exhibition just presented by the other side. He won the case. Now suppose some fellow learning of Vance's success on this occasion should essay to practice law by a system of pantomime. Suppose he should appear before the Supreme Court, and for an hour or two saw the air, gyrate and squirm and wriggle and twist, still never open his mouth, yet claimed he was pleading law, but as he did so without speech or oral argument he was not amenable to the ordinary rules governing those who practiced at the bar.

What would the learned court think of such a scamp? Yet it says Biggs, because he practices without "drugs or knife," is not answerable to the law controlling those who use in their practice everything that Biggs uses, and the "knife and drugs" in addition when they deem it necessary. The voiceless lawyer, would have as good grounds for immunity from law as the "drugless, knifeless" doctor. All lawyers use gestures in their pleadings, there are times when a gesture is more eloquent than words, a rhetorical pause is sometimes effective argument, just as a hot bath is sometimes better than calomel or "massage of the solar plexus" preferable to the knife, but a doctor or a lawyer who would limit himself to these and denounce all other means would be deemed a knave or fool by all reputable doctors and lawyers—except our Supreme Court.

The court too contrasts medicine as empiricism with law as a science, which leads me to ask the court to tell us exactly what are the "rights of A and B when A agrees to sell a house to B and the house burns down before the sale is completed?" To tell exactly what "passes when a corporate share of stock which has been assigned in blank is delivered on the stock exchange," to "accurately define the nature of

the interest which the beneficiary of a trust has in the trust estate," to tell us "what it is we tax, whether persons or property," and then "accurately define the respective interests of the mortgagee and mortgagor." Having done this, we will have a few more questions to ask before conceding the towering superiority of law over medicine as a science.

In this decision too the court has the temerity to "soft-solder" the profession a little alluding to how ancient and honorable our calling is, citing some recent discoveries at Susa in the land of Elam in the time of Hammu-Aribi 1500 years before Moses in proof of it.

All of which looks to me more like a pedantic parading of the court's literary attainments rather than anything pertinent to the matter in hand. If the court really wanted to give us an ancient and honorable lineage, why didn't it cite the removal of Adam's rib to make the woman as the beginning of surgery and dawn of the medical era?

What fools it must think us to try by such cheap flattery to placate us for taking the bread from the doctor's wife and little ones, for in the last analysis that's what it means to turn a horde of fakirs loose among our people. It means that after we have spent our time and money preparing for the practice of scientific medicicine, any slick-tongued charlatan may come along, and if he discards "knife and drugs" may wheedle the public and take your living if he doesn't know any more about scientific medicine than a Comanche Indian knows about integral calculus, and what these fakirs get out of the sick can never come to us any more than the "mill can grind with the water that has passed."

This decision adds insult to injury too by insinuating that monetary motives are at the bottom of our opposition to knifeless, drugless healing. Think of that, you cold-blooded, mercenary, bloated bondholders who have all these years been fattening off mankind's misfortunes and coining the aches and pains of suffering humanity into "filthy lucre." 'Tis true yours is the only calling in life that works overtime

to cut off its own revenue and reduce its own income, that labors to keep people well while your living depends upon people being sick, yet according to this decision you are fighting other systems of medicine for the sake of the few paltry dollars you get out of your work. Why nine-tenths of you men who are wearing out your lives looking after the sick and unfortunate could make more money and accumulate more property and be healthier and happier if you would take a little basket of pins and needles and pencils and matches and hawk them about the streets here like old man Grady, than you can ever hope to get by practicing medicine.

When we look back at the history of our profession, recall its martyrs who have laid down their lives for the sick and diseased of every land and clime, such an insinuation borders on sacrilege. Not a pestilence ever sweeps the earth, or disaster befalls mankind, but gathers a toll of sacrifice and suffering and toil and death from our profession out of all proportion to our numbers. Surgeon Ambler lying down for an eternal sleep mid Siberian ice and snow on the wintry banks of the Lena in a desperate endeavor to save the perishing remnant of De Long's unfortunate expedition, may have only thought of the money it would bring him. Surgeon Jesse Lazear as his heart slowed down forever under the tropical sun of the "Pearl of the Antilles," that he might prove the truth of the "mosquito theory of yellow fever" and rescue mankind from the ravages of this centuries-old pestilence, may have only had an eye single to the boodle it would bring him; the thousand and one nameless doctors, nerve-racked and worn from their work of alleviating pain, assuaging suffering, and beating back the death angel from the humble homes of our land, may have no higher motive to inspire them than a love for "filthy lucre," but in the name of fair play and a square deal, I protest against its being "thrown into their teeth" by any member of a profession that gave to the world the two Abes—Abe Reuf and Abe Hummel.

THE INCREASING FREQUENCY OF THE USE OF NARCOTIC DRUGS BY MEMBERS OF THE MEDICAL PROFESSION AND THE PROBABLE REASONS FOR IT.

By W. C. Ashworth, M.D., Greensboro.

The average physician is not aware of the appalling extent to which the members of our profession are addicted to the use of narcotic drugs. My line of work gives me ample opportunity to note the increasing evil to a greater degree than is imagined or even thought of by the general practitioner or layman. We find on looking over our case register that 75 per cent of all our drug patients are physicians. This per cent is perhaps a little larger than is found in the average institution, which may be accounted for in part by our direct method of advertising to the profession, however we do not believe that it is much larger than is found in most institutions.

I wish to note briefly the causes which are responsible for this evil, which has befallen so many of our medical brethren. It is an evil which is enslaving a large and increasing per cent of the best men in our profession.

The first and leading cause we ascribe to the meager teaching in our medical colleges of the baneful effects of the habitual use of narcotic drugs. The average medical student leaves college with but a slight idea of the insidious action of morphine and cocaine or the easy avenue which leads to the contraction of the habit. If the students of our medical colleges were well grounded in this important branch of medicine, it would not only perhaps be their own salvation, but would in a measure stop the indiscriminate prescribing of narcotic drugs to their patients. Among the questions to the physician entering our institution for treatment he is asked how he contracted the morphine or cocaine habit, he

almost invaribly answers that he commenced its use for acute pain or for the relief of fatigue caused by overwork, not realizing any more than the average layman the insidious action of the drug. I regard it as a great stigma on our profession that such a condition of affairs exists, but on the other hand I hold that the unfortunate habitué is less blamable than his teachers whose duty it was to have given him more information on a subject that so widely concerned his future success in the most trying of all professions.

Now as to the remedy, again I would suggest that a special course of lectures be given each class of medical students on the narcotic drugs and their habit forming tendencies in order that the student may leave college, and take up his work with a clear and concise knowledge of the action of these drugs, and know that if they are habitually used that they are a constant menace to the life and mentality of the user, and that sure and certain dire results must inevitably follow in their wake.

The laity have very little patience with the physician who is addicted to the use of drugs. They say at once, he above all others is inexcusable, because he knew the action of the drug, before commencing its use. I am sorry also to note that the members of the medical profession have about as little patience with the habituated physician as the average layman. Now the remedy lies in the proper teaching of this subject in our medical colleges, and secondly with the individual himself. The physician must not entertain the idea that he is immune to the temptations of other people, or that his will power is of a superior nature to that of his layman brother, per contra we generally find just the reverse of this conditions of affairs. On account of his irregular hours, and the constant grind on his nervous system, incident to his laborious profession he is really more susceptible to the action of narcotic drugs and the relief from worry and overwork is more quickly sought, before he even realizes the subtleness or danger that lurks in the use of these drugs.

In defense of the unfortunate drug user, I wish to say that very few of them commence the use of the drug wantonly. Somewhere, perhaps in the ancestry of the individual you will find the history of excessive use of stimulants or narcotic drugs, thus transmitting to the unfortunate subject a lessened resistance or a strong predilection for the use of stimulants and drugs. I find in support of this argument that fully 50 per cent of my drug patients give a history of a depraved ancestry or other faulty habits of living, due in a large part to the excessive use of narcotic drugs or stimulants. It is natural, therefore, to find the neuropathic type or tendency in most drug users. I wish in this connection to reiterate what I stated about physicians taking narcotic drugs without any more knowledge of their habit-forming tendencies than the average layman, and to this is added the constant danger of these drugs, on account of their being handled daily by the physician, which places him in infinitely more danger than the average layman. When we fully realize the force of this truth we become more sympathetic, and have more patience with the unfortunate physician who becomes addicted to the use of narcotic drugs.

Most people who handle explosives have received instructions as to their danger, and certain precautions are given for their use, but not so with the physicians who daily handle narcotic drugs, which are even more dangerous than the most deadly explosive. The physician leaves his alma mater with the fixed belief that he can handle, and perhaps take a medicinal dose of any drug with impunity, and that he is or can always be master of the situation. This belief, perhaps, continues until he has taken a few doses of morphine during some acute illness for the relief of pain, which time and rest would have been sufficient, but unfortunately he can spare neither, and when the illness has subsided he suddenly wakes up to the fact that it is impossible for him to live without the powerful anodyne, and realizes as never

before that there is no such slavery as the thralldom of a drug. Try as he may to break the fetters which bind him he finds himself utterly helpless, and wholly unable to cope with the situation. There is an old adage that a habit soon becomes second nature, but when it comes to the use of narcotic drugs it stands first, and nature is in abeyance, and all the forces of the body are insufficient to throw it off.

I wish to emphasize again in view of the deplorable conditions of affairs that the failure of our medical teachers to teach every graduating class in medicine the insidiousness of narcotic drugs, whether they be taken by the doctor himself or given to his patient is well-nigh criminal. When the physician learns this lesson well as he should he will cease to give so much to his patients, and consequently we will have fewer morphine habitués among the laity. As an illustration of this point I frequently elicit a history like this from a patient who is just entering for treatment. When questioned as to how he contracted the habit, he states I was sick, and the doctor visited me once a day perhaps, and administered a hypodermic for a period of days, and possibly weeks, and when the illness subsided, the physician in attendance stated that it would not be necessary to give any more hypodermics, and by all means for me not to take any more myself. What happens? The patient writhes in agony when his accustomed narcotic is withdrawn, and he forthwith sends for his regular medical adviser, and is informed by him that the pain is largely imaginary, and that there is really no necessity for his continuing the anodyne hypodermic. The poor patient implores and beseeches his doctor just for one more, but is stoutly refused. What is the result? The patient leaves his bed, if he is able, if not sends to the nearest drug store, and arms himself with a hypodermic for future use. The future of this patient need not be pictured, as he now belongs to the great rank and file of morphine users. Who says the poor fellow is to be blamed? Who is to be

blamed most, the patient or his ill-informed medical adviser? I tell you gentlemen, we deal with this question entirely too lightly. Something must be done, and that quickly or we will become a nation, and a profession of drug users.

The solution of the problem to my mind is to educate the physician himself, who will in turn save himself as well as his patient from the clutches of the "king" of all drugs, morphine. If I have succeeded in arousing your interest concerning this very important subject I will feel more than repaid for the time spent in writing this hastily prepared article.

SURGERY IN THE YEAR 1700.

By T. E. W. Brown, M.D., Asheville.

Mr. President, Guests and Members of the Society: On occasions like the present it is the custom to discuss new theories and methods, and to lay plans for the future. For this reason we are apt to forget those who have preceded us and have laid the foundation for modern surgery.

Before we give our attention to the papers dealing with modern surgical problems I desire briefly to call your attention to the surgery and surgical literature of 1700, so that when we reflect on the great difference between now and then we will not fail to give due credit and honor to the men who have made this growth possible.

In 1700 William III was King of England, a wise and just man, who spent most of his time in conflict with Louis XIV. Russia under Peter the Great had just taken her place as a power in Europe. Sir Isaac Newton, Christopher Wren, George Fox and John Locke, were prominent men. Swift, Pope, Dryden, Congreve, Prior and Steele belonged to this period. The Habeas Corpus Act and Bank of England were each about forty years old, Cromwell had been dead nearly forty years.

In 1700 the art and science of surgery included very little more than the doctrine and treatment of wounds, fractures, luxations, tumors and ulcers, with a description of operations, instruments and bandaging. This division was common for many years later than the date under consideration. About this time the practice of lithotomy was taken over by the surgeons under the leadership of Douglass and Cheselden. For a period of 2,000 years this operation had been considered to be "so difficult and dangerous that it had been ordained to be the entire profession of one man free from other studies and practices."

The field of surgery was limited almost entirely to morbid conditions affecting the extremities and surface of the body. New growth involving the viscera belonged absolutely to the domain of internal medicine. The great field of inflammatory conditions affecting the viscera was undreamed of.

The literature was in a most deplorable condition. No book existed which covered the entire field. The best books on the different subjects had been written by men widely separated and in different languages, making it very difficult to acquire a working knowledge of the best, and forcing the ambitious to travel far to learn all that was to be known.

As a result of this condition whenever a surgeon became proficient in any one line it was customary for him to travel from town to town, from one country to another. In this way quacks and pretenders developed and flourished, and to them were largely left those disorders and operations requiring the greatest skill. Germany is said to have swarmed with them. To-day the author of an article hastens to give the latest reference to his subject and seldom does he refer to any article published more than ten years back, but in 1700, the authorities most frequently quoted were Hippocrates, Celsus and Galen, and any measure or method not sanctioned by them was unorthodox.

So far as I can gather the first attempt to cover the entire field of surgery and make it available for the student was undertaken by Dr. Laurence Heister, who began his book in 1709, and completed it in 1739. He was professor of Physic and Surgery in the University of Helmstadt, F. R. S. London, and R. A. Paris.

To him I am indebted for most of the remainder of this paper, and have frequently quoted him.

In his preface he states that he was led to attempt such a work "because of the general ignorance and insufficiency of the young surgeon and student in this branch of physic, which at the time universally prevailed throughout Ger-

many especially, and because the generality of surgeons being unequal to the more difficult operations were content with being able to cure a slight wound, open a vein or abscess, or at most set a fracture or reduce a dislocation, leaving the rest to quacks."

The necessary qualifications of a surgeon as laid down by Celsus, held good in 1700, and were as follows: "He ought to have quick, clear sight, intrepid mind, void of all tenderness, so as not to be at all moved by the outcries of his patient, to use no more haste than is required, nor to cut less than is necessary."

Prognosis concerning a wound or operation was given with reference to age of patient, the climate and as to whether the patient was "hydropical, consumptive, scorbutical or pocky."

The care of wounds formed a large part of the duty of a surgeon at this time on account of the numerous wars and the frequency of personal encounters. At the first visit the surgeon was called upon to pronounce the wound either "curable or mortal." A wound was mortal when "it could not be remedied by all the art and industry of man." A curable wound was said to become mortal *per accidens*, when the death of the patient was "occasioned by his own ill conduct or by the ignorance or neglect of the surgeon, such as the failure to remove a foreign body or to provide passage for the discharge of blood from thorax or abdomen.

In wounds of the abdomen we find the following directions: "If you can discover by your eye or the touch that any viscus situated in the abdomen has received a wound from a sharp instrument it will be advisable at the first dressing to fill the wound as tenderly as possible with a good quantity of lint, well saturated with high rectified spirit of wine or spirit of turpentine, by this means the hemorrhage will be stopped, if no large blood vessel is divided. At the second or third dressing a tent should be introduced to provide proper

passage for the discharge of grumous blood and other matters, which may kill the patient. If the patient is of plethoric habit of body it will be proper to bleed him, to prevent inflammation and fresh effusion of blood. Also give him daily two or three doses of Melhennins's Balsam, which is of great efficiency in healing internal wounds. What remains must be left to God's providence and the strength of the patient's constitution."

The closure of an abdominal wound by suturing was termed gastroraphy and was resorted to only when the wound was so large that it was impossible to retain the intestines in any other manner, and when a large wound divided the muscles transversely the peritoneum remaining intact.

In an operation concerned with a hernia the rule was to leave the peritoneal sac and all or most of the wound open, and to introduce a tent, the wound was left to heal by granulation. Heister tells us that in his time the Russian surgeons frequently ligated the sac.

We are told that a great many cases of hydrocele in infants can be cured by fasting, chewing a little nutmeg every morning and breathing on the parts at the same time every day. When this failed it was customary to bind a piece of caustic to the scrotum, retaining it there until the sac was open and the fluid had escaped, then to pack the sac with lint for a few days.

Before resorting to the use of instruments to elevate a depressed fracture of the skull a sternutatory powder was highly commended, it being asserted that "the distention of the brain is so violent in the act of sneezing that it will restore the depressed parts of the bone to their former situation."

It is interesting to note in this connection that fracture of the skull by *contre coup* was recognized and described by Hippocrates.

Any preternatural enlargement of the body situated beneath the skin was called a tumor, if it grew "from or upon the skin it was called a wart, corn or excrescence."

In 1700, any new growth was either a schirrhus or cancer. The definition of schirrhus was "any hard tumor situated beneath the skin and void of pain." The tumor was thought to be due to the "inspissation and induration of the fluids of the part, resulting from a previous inflammation." Trauma was the second factor in the production of a schirrhus, and when not due to either one of these causes it was ascribed to a "heavy phlegmatic, melancholic habit of body." It was considered "no difficult matter to determine the principal cause of a schirrhus." A schirrhus could "cause inflammation, exulceration, cancer, gangrene, tabes, stiffness or immobility in the neighboring parts."

A cure was attained with great difficulty, palliative measures were not to be relied upon, and removal was difficult and dangerous because operative interference was not indicated until there was great pain or the size of the tumor demanded it.

When it could not be "dispersed, softened or removed with a knife, when pain developed and when it spread itself unequally it was called a cancer. This is the malignant and worst state of a schirrhus." If the skin remained unbroken it was called an occult cancer. The most common location of cancer was the female breast, other locations were the lips, gums, tongue, fauces, nose and parts of generation—it was also recognized in the male breast.

The causes of cancer included those of schirrhus and in addition it was said to follow the "application of lenient acrimonious or caustic medicines to a schirrhus." A cancerous disposition of the body was thought to follow the eating too freely of pork and lard. "Grief and trouble of mind" were also classed as causes of cancer.

Quacks claiming to possess infallible secrets for the cure of cancer flourished then as now. Heister to prove that nothing short of the complete removal with the knife offered any hope of relief quotes the expression of Hippocrates that "no

physician had yet been happy enough to discover a medicine from which he could promise any certainty of a cure." He also recites the memorable case of Anne of Austria, mother of Louis XIV, "who failed to be relieved of a cancerous breast, though she submitted to the attempts of most every one in the kingdom who had any pretentions to the practice of physic or surgery, but particularly to those who boasted of their secret art in curing this disease."

A brief description of the operation for cancer of the breast will give a fair idea of surgical technique in 1700.

The patient was restrained in the proper position by "three or four strong and courageous assistants, the breast raised from the chest by transfixing it near its base with a double pronged steel instrument or by two strong ligatures passed at right angles to each other through its base, or by seizing it with a strong pair of toothed callipers. The gland was then removed with one sweep made with a large knife or small sword. Diseased tissue in muscle or rib when visible, was cut away. A few large vessels secured and the wound dressed with a large quantity of scraped lint, sprinkled with a styptic powder or impregnated with plaster of paris, and the whole secured with a bandage. By many it was a common practice to treat the wound with suppurants, corrosives or the actual cautery to make the destruction of diseased tissue more certain. But many objected to this and cited the observations made by Celsus that "such practice in no way aided the cure, but possibly promoted a recurrence." Enlarged axillary glands were removed through a separate incision.

There was not much difference between the surgery of 1700 and that of any century which preceded it, of which we have any definite knowledge.

In that day the surgeon had no watchwords. To-day he has three which will never be discarded or laid aside.

The first letter in the first word was furnished by Anthony van Leeuwenhoek at London on September 14, 1683, the

second by Marcus Antonius Plenciz at Vienna in 1762, the remaining were quickly found by Pollander, Davaine, Weigert, Tyndall, Cohen, and Pasteur, and then in 1824, Sir Joseph Lister pronounced it, the pronunciation has never changed—nor ever will—it is asepsis. At the Massachusetts General Hospital on October 16, 1864, W. T. G. Morton and John Collins Warren pronounced "ether" a safe and sure anesthetic. The last of three watchwords in modern surgery was given us by Virchow and Metchnikoff when they emphasized the importance of undertaking morbid process.

To aseptic methods practiced on an anesthetized patient by a surgeon familiar with morbid conditions is due the difference between surgery of 1700 and the present day.

THE CARE OF POST-OPERATIVE CASES.

By Henry Norris, M.D., Rutherfordton.
Surgeon to the Rutherford Hospital.

As the title of this paper implies, it has to do with the care of post-operative cases, but necessarily much of this care must begin before the operation, and I propose to briefly outline the methods used in the Rutherford Hospital, prior to and after operative procedure. The day before operation drachm doses of salts are given every hour until the bowels have been freely moved. When possible the patient is given a full bath, followed by careful preparation of the operative site. To insure a good night's sleep, Trional grs. x is always given. In the morning the patient receives a simple enema of soapsuds and a second preparation. We always begin to operate as early as possible in the morning, as by so doing the patient is saved the nerve-racking waiting and often the tearful farewells of the family; the surgeon and the nurses are cleaner than later in the day. It is all-important to have a skilled anesthetist at one's command who is to be trusted with the administration of nitrous oxide gas, ether, chloroform or ethyl chloride as we may elect; who will reassure the nervous patient and gain their confidence as well as attend to the various pre-anesthetic details, such as seeing that the table is properly prepared and that the patient is sufficiently clothed and covered. It is our practice to invariably give a hypodermic injection of morphine sulphate gr. ⅛—gr. ¼ fifteen minutes before the anesthetic is commenced, and it is better in patients who are nervous to anesthetize them in bed and carry them to the operating table. My own preference is for ether as the anesthetic of choice though I have used scopolamine-morphine anesthesia in some fifty cases with excellent results, and I believe that its use is indicated in certain cases. No time should be

wasted by the surgeon when the patient is brought in the operating room, and his procedure should be as rapid as is consistent with good, clean, thorough work, as shock is unquestionably increased by operations unduly prolonged, just as nausea is increased by large amounts of ether. It is not at all uncommon in some of the large clinics connected with teaching institutions to see a patient fully anesthetized and kept waiting for ten or fifteen minutes whilst the surgeon talks, or to see him stop in the midst of his operation to explain or dilate upon some condition which he wishes to make clear. Except in those cases requiring drainage I use a very small light dressing, consisting of about four thicknesses of gauze, secured by narrow strips of zinc-oxide adhesive plaster. On the patient's return to bed any damp clothing is immediately removed and until the patient has regained consciousness, they are watched every moment by a skilled nurse who is competent to take the pulse intelligently and to note and record symptoms. When morphia has been given beforehand and ether properly administered there is not apt to be much nausea. When it occurs, however, it can often be relieved by raising the patient's head a little or by giving inhalations of vinegar or sips of very hot water. We expect patient to complain of pain in the wound, which is usually of a burning character and passes off in the course of a few hours if the sutures have not been tied too tightly; of thirst, for which cool water should be given frequently in small quantities; of backache, which may be made more bearable by turning the patient from side to side, rubbing the back with alcohol and by the proper adjustment of pillows. Six or eight hours after an ordinary abdominal operation the patient should be fairly comfortable, and long continued expressions of pain should cause us to make sure that everything is as it should be. A too tight or uncomfortable dressing is sufficient to keep a patient awake all night. I think it advisable not to give the patient morphia when they are

conscious unless we are convinced that they are in actual pain. I do not believe in using the catheter until the bladder is actually distended and causing pain. At the end of twenty-four hours food is given in liquid form; buttermilk or thin broths, and the feedings are increased in frequency and amount until the third day, when the patient receives solid food entirely. If the bowels have been thoroughly emptied before operation about the third day is soon enough for them to move, and they are encouraged to do so by a simple enema. Tympanites may often be relieved by the introduction of the small rectal nozzle of a fountain syringe or by an enema. I have never gotten any results from any of the drugs supposed to increase peristalsis, such as eserin, atropine, phenolphtalein, etc. I think that it is the surgeon's duty to see his patients as often as he can during their convalescence, and if they are complaining to endeavor to find out the cause of their pain and not merely attribute it to nervousness or crankiness; a few cheerful words and a little moral encouragement will often work wonders. Of course no hard and fast rule can be made as to how long patients should be kept in bed, but I think that the practice of getting laparotomies on their feet inside of a week can not be too strongly condemned. It is a well-known fact that old people do not do as well when confined to bed for a long period of time, and we also know equally well that many surgical cases are very much benefited by a rest of three or four weeks after operation. My own feeling is that when a surgeon discharges a patient, that patient should be in a condition to take up their ordinary duties instead of being obliged to take a prolonged "rest cure" at home as is so often the case.

HÆMATURIA.

By A. J. Crowell, M.D., Charlotte.

Hæmaturia is a prominent symptom in diseases of the genito-urinary tract and often the only symptom of which the patient complains in the early stages. In such cases the location of the origin of the hemorrhage is difficult and requires every available means at our command.

In considering the etiology of hæmaturia it is customary to divide the cases into two groups: (1) those due to local, and (2) those due to general conditions. As instances of the first we have inflammation, acute and chronic, thrombosis, embolism, traumatism, retention, abnormalities, parasites, calculi, tuberculosis and tumors, benign and malignant.

Under general conditions are included:

First. Infectious diseases, such as malaria, typhoid, yellow and scarlet fevers, variola, pneumonia, and plague.

Second. Blood disease, hemophilia, scurvy, purpura, leukæmia.

Third. Intoxications and poisons, such as cantharides, turpentine, mercury, and quinine.

Fourth. Pregnancy and lactation.

Fifth. Nervous diseases.

Idiopathic hæmaturia is given that form of hemorrhage from a kidney free from demonstrable lesion. Hemorrhage from the bladder, seminal vesicles and urethra, produced by local causes, are inflammation, acute and chronic, traumatism, rupture of the bladder, prostatitis, hypertrophy of the prostate gland, foreign body and urethral stricture. When hemorrhage occurs at the beginning of micturition, a urethral cause is suggested, such as urethritis, specific and nonspecific, urethral growths, stricture, foreign body and trauma.

In this paper we shall speak of hæmaturia due to local conditions only and call attention more especially to the car-

dinal symptoms which designate the location of the lesion and the different means requisite to ascertain their location with the necessary precautions to be taken in our investigations. The treatment will be omitted as this alone would require an extensive paper.

In the first place the history should be taken with great care, noting definitely the time and character of the hemorrhage. Urinary hemorrhage due to local causes is most frequently associated with tuberculosis, tumors and calculi of the kidneys, and with tumors, ulceration and stone of the bladder. Hemorrhage excited by motion bespeaks renal or vesicle calculi. Sudden hemorrhage without apparent cause, prolonged and hard to control, indicates kidney tumor. Rest in such cases avails but little, but is very beneficial in stone of the kidney or bladder. Hemorrhage at the end of micturition indicates trouble at the neck of the bladder. This is typical of gonorrhœal inflammation in the trigone and posterior urethra and less frequently of vesicle calculi and hypertrophy of the prostate.

Bright red blood intimately mixed with the urine as a rule is of vesical origin and dark smoky or porter colored indicates kidney trouble. The more villous the tumor the more profuse the hemorrhage, and the more likely to be of a bright red color. Tumors such as fibroma and myoma, covered with normal mucous membrane, seldom bleed. Hemorrhage from neoplasm, whether vesical or renal and from chronic Bright's disease, or so called idiopathic nephritis begins without apparent cause, and may be scant but usually profuse, unaffected by rest or medication and ceases without apparent reason, leaving the urine apparently normal. Hemorrhage from neoplasm grows more severe and recurs more frequently as the disease progresses. Vesical hæmaturia is aggravated by instrumentation and unaffected in renal. Hæmaturia in renal tuberculosis is usually slight and intermittent. However, it may be constant but the blood is much less than in

malignant diseases or calculus pyelitis. Undue frequency of urination and slight incontinence are symptoms which should always arouse suspicion of renal tuberculosis. When the parenchyma alone is involved there is usually no pain and develops only when the mucous membrane of the callices become involved or when an abscess empties into its pelvis. This may be followed by paroxysms of pain, due to obstruction of the ureters with pus and detritus. After the abscesses have once opened into the pelvis and mixed infection has taken place, pyuria is constant, except when the ureter becomes blocked. Cystoscopic examination will generally show œdematous pouting of the ureteral eminence or erosions about its orifice, on the affected side.

Primary tuberculosis of the bladder and that extending from the genitaliæ show an affinity for the posterior wall of the bladder and that descending from the kidney usually confines itself at first to the region of the ureteral orifice. Tubercle bacilli can be found in at least 80% of all cases, if we persist in our search for them, and of course settles the diagnosis. This is the only single sign that will. In the initial stage of vesical tuberculosis only two well-defined symptoms are to be observed, namely frequency of micturition and hæmaturia. The frequency may not be very great yet the patients are forced to pass their water more frequently than normal, both day and night. Micturition is not painful though some discomfort is experienced at the end of the act which may be alleviated and at times removed by narcotics though the frequency is scarcely affected by their use. The urine voided during this period is usually clear though hæmaturia of short duration is occasionally seen following micturition. Neither activity or rest exerts any influence upon the hemorrhage, and in this respect resembles somewhat that due to neoplasm of the bladder but the hemorrhage is nothing like so profuse, often only demonstrable by means of the microscope. In the advanced stage stranguary and painful

micturition is a prominent and persistent symptom, and though present in other forms of cystitis, responds to treatment much more readily. The nearer the ulcerations approach the vesical sphincter, the more prominent the symptoms. The urine is either neutral or alkaline in the majority of the cases of tuberculous cystitis and the quantity is much larger.

In every case of hæmaturia it is necessary to know the source of the blood since hemorrhage occurs from any point in the urinary tract. The history, character of the urine and physical examination may give an idea as to the probable source of the blood, but we can never be quite sure without a cystoscopic examination. The hemorrhage from vesical papilloma is very difficult in certain cases to distinguish by such means from renal hemorrhage and certainly impossible should it be renal to distinguish from which kidney the blood issues. Such evidence is furnished by the cystoscope. In addition to ascertaining whether it be renal or vesical, having determined which kidney is at fault, we have next to decide to what the bleeding is due. Nephritic or idiopathic hæmaturia is most frequently confused with that due to calculus, tuberculosis and tumors and can be determined only by the above mentioned symptoms and a careful examination of the urine.

It has been definitely proven that the so-called idiopathic hæmaturia is only an early manifestation of chronic interstitial nephritis, and may precede other symptoms of the disease for months and even years. We have had in our practice three such cases, the hemorrhage in each being profuse, painless, intermittent, free from pus or tube casts. One of these cases having recurred with three pregnancies during the last seven years and disappeared after each delivery except the last, after which time the hemorrhage continued profusely. (Frequent urinalysis during these intervals, revealed a perfectly normal urine.) On cystoscopic examination the blood was readily seen coming from both kidneys. Medical reme-

dies had been used faithfully with no avail and the hemorrhage was so profuse and the woman so emaciated that she readily consented to an exploratory operation. On exposing the right kidney, to all appearances, it was perfectly healthy. An incision was made through the entire convex border down into its pelvis with the hope that an explanation of the hemorrhage might be discovered, finding nothing, the kidney was stripped of its capsule, replaced and the incision closed. The patient made a rapid recovery. Subsequent cystoscopic examination showed the kidney to be secreting a perfectly clear urine, but that coming from the left distinctly bloody. Decapsulation of this was advised, but up to the present she has not submitted. The other cases I have mentioned are both in men, and still under observation. The hemorrhage has not been so alarming, and the longest spell of continuous hemorrhage in either case was twelve weeks. This patient was about ready to undergo an operation when the hemorrhage suddenly ceased. So far as I can detect at present the urine is perfectly normal, having made a number of chemical and microscopical examinations of same. His hemorrhage was from the right kidney and so profuse that ureteral catheterization of this side was unnecessary, but it was used on the left from which a normal urine was obtained. This is the only attack of hæmaturia from which he has suffered, and it is now seven months since any blood has been found in his urine.

The other case I have mentioned has suffered two attacks, the first one, two years ago, and the last four months since. The longest one lasting six weeks and was bilateral. I am watching these cases with much interest, and may have an opportunity of reporting them more definitely at a later day. All of these cases have been examined repeatedly for tuberculosis, stone and neoplasm, but up to the present we have been unable to ascertain any special indication of either of these and have decided that they would be classed as idiopathic or nephritic, hæmaturia.

The case that suggested the title of this paper was as follows:

Rev. F. S. H., age 59, came to my office for treatment for urethral stricture.

Family History—No cancer or consumption, but father died of dropsy, and some of his brothers and sisters suffered with kidney trouble.

Present Illness—The patient had been fairly well until a day or two previous to his visit to my office at which time he suffered with frequent desire to urinate with pain in the back and the region of the bladder. The previous day he consulted his family physician when an effort was made to catheterize him. The pain from this was so severe that chloroform was necessary and the patient was kept under its influence for about an hour and a half. Finally a small amount of urine was withdrawn, but not sufficient to give relief, and the patient was referred to me. But little trauma was produced in this effort as only rubber catheters were used. Following this he was unconscious until the next morning, something like eighteen hours. Calls to urinate during this time were frequent and occasionally a few drops were expelled. About an ounce of bloody urine was passed after coming into my office, before I was able to see him. Thinking this was probably due to trauma and on account of being quite busy, we put him on the table, preparing to make an examination without a urinalysis. This is contrary to our rule. While waiting for some instruments to boil we were going into the history of the case a little more fully when suddenly the patient failed to answer a question. Immediately he went into a severe convulsion which was followed by another and another until within ten or fifteen minutes he breathed his last, after all available means had been used to sustain life. Post-mortem examination showed the bladder about normal or probably slightly congested and that no urethral trauma had been produced the previous day, but the kidneys showed

a very decided parenchymatous inflammation, from which the blood came. As luck would have it we had not touched the patient with an instrument. If we had and he had gone away and died on the streets or in the hospital we would have censured ourselves for using instruments without previous urinalysis for the reason that any urethral instrumentation in acute nephritis is likely to cause suppression of urine and must be avoided.

This occurred with a patient of ours several years previous. He came to my office a beautiful warm morning in May (wearing an overcoat and complaining of being cold) to consult me in regard to some frequency of urination, following a prostatectomy about eight weeks previous. We were unable to get a specimen of urine as he emptied his bladder just previous to entering our office. A No. 18 F, double Mercier curved catheter was passed with but little difficulty, and obtained about one ounce of apparently normal urine, probably a little dark. A No. 20 F sound was passed and the patient sent into the hospital for a few days' treatment. He was taken with a severe urethral chill in two hours, followed with high fever, suppression of urine and died in about thirty-six hours.

We fully believe this man was suffering with acute nephritis when he came into the office and urinalysis would have warned us against instrumentation. A post-mortem examination was not obtainable in this case, and we are unable to say if such was the case.

AN ANTISEPTIC LEECH.

By W. D. Witherbee, M.D., Charlotte.

Another name for this dressing, quite as appropriate as the title, would be—A LYMPHATIC LEECH. In fact this might better imply the function for which it is designed.

The antiseptic leech consists of a piece of sterile gauze dipped in a saturated solution of magnesium sulphate. The surface to be directly applied to the wound is sprinkled with a little powdered boracic acid. The gauze is then applied to the granulating surface and over this a piece of adhesive plaster is placed in such a manner as to completely cover the moist gauze, and at the same time seal it from the air to prevent evaporation. The reason for preventing evaporation is that capillary or lamp-wick drainage is maintained just so long as the gauze remains moist. Besides capillary drainage epsom salts increases materially the drainage of the lymphatics by osmosis. If the granulations adhere to the mesh of the gauze, a piece of perforated gutta percha tissue may be placed over the wound before the gauze and adhesive plaster are applied.

The indications for such a dressing are chiefly, if not entirely, in those cases where it is essential to reverse the current of lymph in the local tissues and obtain drainage instead of absorption of both the toxins and bacteria. The usual method of treating infected wounds at the present time is by means of a moist antiseptic dressing. In the more virulent infections corrosive sublimate solution of various strengths is used. Corrosive sublimate, as its name implies, is a caustic and even if used in dilute solution acts as an astringent by coagulating the albumin and thus tends, in spite of the capillary drainage, (if the dressing is kept moist) to seal the wound and interfere with the drainage of the local lymphatics. In other words it is more important to

drain the local lymphatics of their bacteria and toxins than it is to simply destroy those present in the superficial layers of the wound by means of an antiseptic which coagulates albumin.

In the treatment of cancer we are constantly reminded of the evil effects of local irritation causing an increased blood supply to the part which in turn increases materially the virulence of the malignant cells present. This is too often well illustrated by the results obtained following the use of caustics or partial removal by the knife.

The cardinal principles of the open method treatment of cancer, which I first described in a paper read before this Society in Charlotte in 1906, are: 1st enucleation; 2d drainage; 3d X-Ray. Even if the enucleation is carried out according to the dictum "cut only in normal tissue" that is wide of the diseased area, there can be no doubt that even then some of the malignant cells still remain. The inflammatory reaction or congestion of blood which always takes place about every wound causes the embryonic cell or cells which still remain in these tissues to take on more life and virulence and eventually produce a recurrence which is invariably more malignant than the original condition. The method used to overcome this inflammatory reaction as well as to promote more thorough drainage about a wound following operation in a case of epithelioma of the skin is by the application of the antiseptic leech as well as the daily application of the X-Ray. If the case is one of muco-cutaneous surface it is impossible to apply this dressing. After the removal of the diseased area a cut is made in the mucous membrane just beyond the wound down to the basement membrane in order that the reaction may take place well beyond the tissues that may contain a stray cancer cell; this is also treated daily with the X-Ray. In cancer of the breast after the operation Bier's hyperæmic apparatus should be applied daily as well as the antiseptic leech and X-Ray to facilitate drainage, overcome the inflammatory reaction and either

drain away or destroy the cells that remain, thus preventing recurrence.

At the ourdoor clinic in surgery of the North Carolina Medical College this dressing has been used with the most satisfactory results in the following conditions: 1st, ulcers with hypertrophic granulations; 2d, Inflammatory infiltration about joints due to trauma; 3d, Various local infections as well as streptococcus infection after scarification; 4th epididimo orchitis, and 5th, as a vaginal tampon in the place of ichthyol or boroglyceride.

SURGICAL DISEASES OF THE KIDNEY.

By J. Garland Sherrill, A.M., M.D., Louisville, Ky.

We have been led to the consideration of this subject because of the frequency with which lesions of the kidney are overlooked during the early stages when much good can be done by proper surgical treatment. The symptoms during this early stage may be so vague as to escape the notice of the attendant and often that of the patient himself. It is not our purpose to enter into a full discussion of renal disease, but rather to mention a few of the more important points which will lead to a diagnosis, and to mention briefly a few cases which have come under our observation. We have found that a most careful study of the early symptoms of renal affections has enabled us to diagnose many cases in which the symptoms seemed to be obscure. The early symptoms of tuberculosis of the kidney are especially referable to the bladder, and many a patient has been treated for long periods for cystitis when the real lesion lay in the kidney itself. Cases of stone in the kidney also present rather vague symptoms which require a very careful analysis in order to reach a conclusion, but to those familiar with such conditions suspicion of a renal lesion is at once excited and with care a diagnosis can be made. The diagnosis of tumors of the kidney will always require a nice diagnostic skill, but it is only the most superficial observer who will overlook a floating kidney.

The symptoms to which we call your attention are variations in the normal amount of urine excreted, especially an increase of the quantity passed with a marked increase in the frequency. The presence of pain directly over the kidney, along the course of the ureter, or over the bladder, or, perhaps reflected down the thigh; the presence of small quantities of pus, blood, crystalline elements, or necrotic tissue in

the urine are all suggestive of a renal disturbance. The reaction of the urine is also of great importance. Bladder inflammatory conditions result in alkalinity of the urine, whereas lesions higher up in the urinary tract show very frequently an acid urine. While most of the cases can be correctly differentiated with proper care, many are very puzzling, and some are impossible of diagnosis even after careful study except upon the operating table.

The more important lesions of the kidney of interest to the surgeons are: (1) peri-renal abscess; (2) suppuration in the kidney pelvis; (3) renal calculus; (4) hydronephrosis; (5) movable kidney; (6) tuberculosis, and (7) malignant disease, as sarcoma, carcinoma, and hypernephroma.

In the diagnosis of these conditions a careful study of the clinical history of the patient must be made, as much valuable information may be lost by lack of care in questioning the patient. The age of the patient, the onset of the disease, the length of time it has existed, the amount and character of the discomfort produced, the size and location of any mass which is present, and the urinary findings, constitute the principal data upon which our conclusions must be based.

Peri-renal suppuration may result from the extension of renal involvement, such as calculus or suppurative kidney, or it may follow appendicitis, inflammation of the liver or gall-bladder, or disease of the vertebræ. It may also in rare cases occur subsequent to a traumatism. As a result of infection in the fatty capsule of the kidney, a quite perceptible tumefaction appears, the patient complains of a pain and a sense of weight, and heaviness in the affected region. The swollen area is indurated and gives to the hand a sensation of heat. These patients frequently assume a rather characteristic attitude, walking with the body bent forward, the back being more or less fixed and rigid, simulating closely the attitude of Potts' disease. In recumbency these patients will lie with the thigh flexed upon the trunk. This is the re-

sult of an involuntary effort to remove pressure from the diseased structure. The constitutional symptoms are those usually noted in acute suppuration. If the kidney is not diseased the urinary findings are unimportant, but if calculus or tuberculosis of the kidney coexist they become most valuable in arriving at a correct conclusion. To finally determine the presence of pus we must depend upon the evidence of fluctuation, the leucocyte count, and, if necessary, aspiration.

Suppurative pyelitis may result from the localization of bacteria which are in the process of elimination through the kidney, or it may result from calculus, from tuberculosis, or from infection which has extended from the bladder. Ascending infection, as a rule, only occurs when there is obstruction to the urinary outflow. Gonorrhea predisposes to suppurative pyelitis, and may be the actual exciting cause. The symptoms will depend to some extent upon the presence or absence of complete obstruction of the ureter. When the ureter is patulous pus and blood will be found in the urine, but when the ureter is completely obstructed the pus accumulates in the pelvis of the kidney, and a considerable enlargement or mass forms in the region of the kidney. It can be readily understood that the symptoms of suppurative pyelitis may vary according to the pathology present. It may develop with a chill and fever, great pain and tenderness, following a cystitis, and the symptoms may be so marked as to render the diagnosis comparatively easy. Again, it may appear as a pyuria and exist for a long time before being recognized. If there has been pus in the urine, and the urine suddenly becomes clear, with the development of pain in the lumbar region, the case is evidently one of suppurative pyelitis with obstruction.

The differential diagnosis between pus from the kidney and purulent cystitis may be made with fair accuracy by thoroughly washing out the bladder until the water returns clear, then after a few minutes delay drawing off the urine

which has collected. If this specimen shows pus in about the same proportion as the former one we may feel assured that we are dealing with a renal pyuria. If, on the other hand, the urine is clear we may know that the trouble is located in the bladder. Where such methods fail us cystoscopy gives us important information in that the infected bladder can be readily recognized by the eye, and purulent or clear urine can be seen discharging from the ureter. Cystoscopy, however, should be practiced under these circumstances with the greatest of care, as there is danger of increasing the inflammation in the bladder or ureter if such exist. In order to determine the character of the urine from each kidney the method of Kelly may be followed in the female, and urine sufficient for purposes of examination may be collected by holding a speculum with an oblique end under the ureteral orifice. Or after thoroughly cleansing the bladder to free it of infective material, ureteral catheterization may be practiced. To determine whether or not the suppuration is tubercular in character, repeated examinations of the urine for the tubercle bacillus should be made. These examinations are best carried out by taking one or more slides each day for several days, because of the fact that the urine may be free of bacteria for some time and then suddenly be loaded with them, especially if the disease has penetrated the renal pelvis. In some instances it may be necessary to inoculate animals with the urine in order to differentiate between these two conditions.

Renal calculus may exist for a considerable time without exciting symptoms of sufficient importance to attract attention, yet, as a rule, the patient will complain of vague pains reflected down the thigh, over the gluteal region, or across the back. These symptoms are often so vague that only a most careful observer would be liable to suspect the kidney region. The patient may complain of soreness in the kidney region with perhaps sharp exacerbations of pain, or pain

may appear suddenly. At times there may be noticed the discharge of small particles of gravel in the urine. This is especially likely to occur after an exacerbation of pain. Vesical irritation is sometimes noted, and the patient may state that the urine has contained blood. Such symptoms are of greater importance when the patient leads a sedentary life, especially if he has a gouty or rheumatic tendency, or if he is in the habit of passing a concentrated urine. Examination of the urine will show the presence of pus, blood and crystals, either oxalates, uric acid or the urates; it will usually be acid in reaction and of high specific gravity. Hæmaturia is not so constant as in tuberculosis of the kidney, and is more likely to be present after an attack of pain. The kidney may or may not be enlarged as a result of renal calculus. During an attack of pain the patient may suffer from urinary suppression. This may occur from the obstruction of one ureter by a stone, with spasmodic contraction of the other, or there may be a temporary cessation of the secretion of the other kidney from sympathy. A more serious form of anuria occurs when both ureters are obstructed by calculi. Hydronephrosis may occur when a stone partially or intermittingly obstructs the duct.

The diagnosis of renal calculus is to be made by the presence of a sharp sticking pain in the kidney or ureteral region, lasting for half an hour to several hours, with more or less suppression of urine and profuse sweating; by the discovery in the urine, after such an attack, of pus, blood and crystalline substance; and by the presence (in the case of hydronephrosis) of an increase in the size of the renal tumor. In the urinary examination it is important that the specimen should be the secretion directly from the suspected kidney. In examination of a kidney containing calculus, pain may be elicited by bimanual pressure suddenly made upon the organ. This is especially true if the hand in the loin strikes a rather forcible blow over the kidney.

Within recent years advances have been made in the diagnosis of renal calculus by means of the Roentgen ray. An expert in the manipulation of this form of electricity can with some accuracy detect upon the photographic plate a shadow at the site of the calculus. It is well in making this examination to take several skiagraphs at different times, lest a defect in the plate mislead the observer. By having thus a number of skiagraphs, including in the observation the ureter, it is claimed that one can note the passage of a small stone in its course from the kidney to the bladder. An observer can by careful consideration of the evidence presented by the clinical history, the urinary findings, a physical examination, and the skiagraph make a diagnosis with fair certainty.

Hydronephrosis may result from any condition which causes a partial or intermittent obstruction to the outflow of urine from the kidney pelvis. Thus it may result from congenital or acquired stricture of the ureter, from stone in the ureter, from the pressure of a pelvic tumor, especially of the malignant type, and from enlarged prostate or a tumor near the neck of the bladder. It is a condition which develops slowly with some discomfort and finally pain, which may be slight or quite severe. The tumor is usually well rounded and smooth, filling one loin, or sometimes both if the condition affects both sides. Double hydronephrosis may follow extensive carcinoma uteri. The patient may have noted the passage of a diminished amount of urine for some time. When due to calculus the urine will at times have shown the presence of blood, sometimes macroscopically, more often microscopically. A sudden large discharge of urine may be noted, followed by a corresponding diminution in the size of the swelling. The general health may be somewhat affected, but not so rapidly as from malignant disease or tuberculosis.

Movable kidney causes a variety of symptoms, producing the so-called renal crises, and its detection is, as a rule, com-

paratively easy to the experienced observer. From torsion of the ureter the urine after one of these crises is likely to contain blood; as a rule it is free of pus or other evidence of either calculus or tuberculosis.

Pain, consisting of a more or less constant weight in the loin, with occasional attacks of acute suffering, followed by a free discharge of urine, perhaps containing a few blood cells, and accompanied by nausea, flatulence, and irregularity of the bowels, is strongly suggestive of movable kidney. A movable tumor of the kidney shape, pushing towards the umbilicus in recumbency, which can readily be pushed back into the loin, is sufficient for a diagnosis. Several examinations may be necessary before its mobility is established, and in some fat or muscular patients it may escape detection. The existence of a calculus or tuberculosis in a movable kidney will present symptoms of these conditions, and the possibility of such an occurrence must not be overlooked.

Renal tuberculosis is justly entitled to greater consideration than has hitherto been accorded the subject, and the condition may be overlooked for a long period when treatment offers most to the patient. It is claimed that the kidney is attacked in 2 per cent of all cases suffering from tuberculosis, and while it may be true that many cases showing renal involvement are inoperable, the fact remains that in a considerable number no other lesion can be found save that in one kidney, and the majority of such cases are to be classed as distinctly operable.

Tubercular infection of the kidney commonly takes place through the circulation. Rarely, however, there may be an ascending infection from the testicles, bladder or ureter. Cases have also been recorded in which the infection could be traced to Potts' disease, or to a tuberculosis of the intestinal tract, peritoneum, etc. The onset of renal tuberculosis is usually insidious in character; exceptionally it begins with an attack of sudden pain in a patient previously healthy, simulating a renal colic.

The probable cause of this pain is an obstruction of the ureter with blood clots or cheesy material. A history of traumatism may be elicited. The patient will state that he has suffered for some time with pain or soreness in the back. In some cases vesical irritation is particularly distressing, and painful and frequent micturition may be present even in the absence of demonstrable bladder involvement. Early in the disease the quantity of urine is increased above the normal, and later the amount is greatly diminished. Morris claims that polyuria, in a frail patient of tuberculous family history, for which no other cause can be assigned, should excite the suspicion of renal tuberculosis. Pyuria is almost invariably present, and hæmaturia is frequently one of the early symptoms. The blood is usually equally diffused throughout the urine. Except when cystitis coexists the urine is acid in reaction. Albumin is always present, and renal casts are occasionally observed. The kidney may or may not be enlarged, but the presence of peri-renal inflammation is most likely to give the impression of a tumor mass. Tubercle bacilli can be demonstrated present in the urine in the majority of cases by repeated daily examinations, and their presence in connection with blood and pus, and in the absence of bladder and prostatic disease, renders the diagnosis almost certain. Absence of the bacilli from the specimen of urine is, however, not positive proof that the kidney is not involved. The general symptoms are those usual in tuberculosis of any portion of the body, evening rise of temperature, loss of flesh, anorexia, pallor of the skin, night sweats, etc.

The diagnosis can be made by considering the history and general appearance of the patient; by the presence of pain in the region of the kidney, usually coming on slowly and gradually, but exceptionally closely resembling the pain of calculus; by the dysuria, polyuria, hæmaturia, pyuria in acid urine, and the presence of albumin. In some cases it may be possible to detect tenderness along the ureter, and when

present is a valuable indication. Demonstration of the bacilli of Koch in the urine, in connection with the other symptoms mentioned, will be reasonably conclusive. As an additional precaution in diagnosis, and to determine which kidney is affected, cystoscopy and ureteral catheterization may be resorted to, although the latter procedure is not entirely free from risk.

In microscopical search for the tubercle bacillus in the urine great care must be observed not to confuse this organism with the smegma bacillus. Recent investigations by Young and Churchman have shown that smegma bacilli are surface organisms, and that it is easily possible by a process of retrograde irrigation to completely wash them from the surface of the urethra. Careful sterilization of the external parts is, of course, essential before the irrigation is commenced. When these measures are correctly carried out the ordinary staining methods may be employed for the detection of tubercle bacilli.

A patient suffering from malignant disease of the kidney will usually present the history of a tumor increasing in size somewhat rapidly, causing a sense of discomfort and heaviness rather than acute pain in the renal region, accompanied perhaps by some blood in the urine. Pus is not to be expected in the urine in the absence of complications. A careful physical examination will, as a rule, make it possible to determine the seat of origin of such a growth, if the observer constantly keeps in mind the conditions which are likely to mislead him. Morris says (p. 586, Vol. I) that when a swelling, which begins on one side of the abdomen and in the renal region of a patient, either below the age of five or over that of forty years, attains rapidly a very large size, its malignancy may be diagnosed with fair certainty.

Malignant disease will in a short time make its impression upon the general health of the patient, and the characteristic cachexia will sooner or later develop. These points, taken

in connection with the clinical history, and by the exclusion of other conditions, especially enlargement of the spleen, will usually enable us to arrive at a correct diagnosis.

Our experience includes 21 cases, 17 of which came to operation, while 4, for various reasons, were not operated upon. All of the latter cases were of tuberculosis of the kidney; one of these patients died as a result of the disease within two months after she refused operation, having in the meantime passed from our observation. In the second case both kidneys were affected with tuberculosis and a change of climate with usual treatment for tuberculosis was advised, with result that the patient is still alive. The other two cases showed a unilateral tuberculosis of a mild type and both of these are still living, one 15 years after his first symptoms appeared.

Of the operations done three (3) were nephrotomies, six (6) were nephropexies, and eight (8) nephrectomies.

The nephrotomies were done, one for partial tuberculosis of the kidney, in which we hoped to preserve the remainder of the organ, but in this we were unsuccessful and another operator, a year or so later, removed the gland. The second nephrotomy was made for suppurative pyelitis with marked pyonephrosis, the result of a mixed staphylococci and gonococci infection. This operation failed to relieve the condition and the patient became septic, so that it was necessary to remove the kidney by a nephrectomy. The third nephrotomy was done for a persistent hemorrhage due to renal varix, the exact diagnosis not having been made before operation.

Of the nephropexies one was later subjected to nephrectomy for very persistent nephralgia; and in one there was a recurrence of the mobility, which we believed to be due to the method of operation. In this latter case the kidney was held in place by gauze suture beneath either pole. The result immediately following operation was apparently good, but within a year the kidney has again become quite mobile.

Of the eight (8) nephrectomies three were performed for tuberculosis of the kidney, one for traumatism, one for a marked hydronephrosis with ureteral calculi impacted in the ureter; one due to renal stones, which was misplaced and fixed; one for persistent nephralgia following nephropexy, and one for pyonephrosis, nephrotomy having failed to cure.

These operations were without mortality, and the final outcome in every case save one was a recovery and in this case, a nephrotomy, there was a persistence of the tuberculosis, demanding subsequent nephrectomy by another operator.

THE TRANSMISSION OF DISEASE BY FLIES.

By C. S. Grayson, M.D., High Point.

The civilized world to-day is engaged in a warfare, the results of which will be more far-reaching and the ultimate triumph of a greater blessing to humanity than any struggle of arms in the history of the world. The strong intrenchment of the enemy, with its varied weapons of war, makes it the most formidable foe which ever drew sword in battle. Reference is here made to the great conflict between the human race and that dread enemy—disease.

This conflict is not a new one. More than a century has been spent in skirmishes by some of the deepest thinkers and most unselfish men the world has ever known. Some of these leaders have given their lives to the work of medical research. By their untiring efforts they have been able to discover many of the strategic points of the enemy.

Leeuwenhoek, a lens grinder, with his glass enabled us to get acquainted with our little neighbors, the germs. Some of these little unicellular neighbors of ours, like neighbors in general, are good and some are bad. Some of them liquefy organic matter, the air absorbs the moisture leaving only a dry, odorless and harmless substance behind. Others, however, when taken into our bodies produce pathological conditions, lay us on beds of sickness and bring us to untimely graves. Koch proved that one group of these organisms produces tuberculosis; Eberth, that another causes typhoid fever, and Klebs, that still another is responsible for diphtheria.

These germs are so small that it takes thousands placed end to end to make an inch. How then can these little microscopical bodies having neither legs nor wings come all the way across town from a consumptive or typhoid patient and take up their abode with us? These little seeds of death may

reach us by a number of routes but we shall here investigate but one.

In "Acres of Diamonds" the story is told of a man who went to a distant land in search of silver. Old, gray and disappointed he returned home to die. To his surprise he discovered that the stone in the wall to which he fastened his gate and which was worn smooth by his own hand was almost pure silver.

Let us not look so far away for enemies that may one day come to strike us down. Let us, for the moment, forget the achievements of Jenner, Pasteur and Lister and let us come back to our very doors and study the habits and prove the character of the pesty little house-fly.

Hitherto the fly has been regarded complacently as a harmless nuisance and considered to be an annoying creature with great persistence and excessive familiarity. Regarded in the light of recent knowledge the fly is the most dangerous animal on earth, more dangerous than the tiger or the cobra.

Flies are filthy insects. They drink from cesspools and dive in privy vaults. They eat the sputum on the sidewalk, and revel in the garbage pail. They swarm on the baby's diaper, and are greedy for the dressings from a discharging wound.

Perhaps you think it is disgusting to read of such things, and so it is. But is it not more disgusting to have these same flies, after their repast of filth, drown in the milk pitcher, drop their specks on the frosted cake, or clean their feet on the bread? Is it pleasant to see flies that have just come from a neighboring privy crawl over the lips of the sleeping baby, or gather on the nipple of its nursing bottle? Suppose the fly that was fished out of the milk pitcher took a similar cold plunge on the previous morning in the cuspidor of a consumptive, or had just been eating the excrement of a typhoid-patient, would you like to drink the milk? Did you ever ask Mr. Fly as he promenaded across your sponge

cake for the name of the boarding house at which he last dined, and what was on the bill of fare?

Who has not seen flies feeding on sputum on our pavements and streets? As there are people who have consumption, continually spitting on the public pavements, is it not easy to see how the germs of the disease can be taken up by the fly, carried away and deposited on our food? Perhaps the flies that were walking on the fruit which you purchased at the grocery store had just been feeding on the sputum of a consumptive. The alternate visitations of the fly from the cuspidor or privy to the kitchen and dining room afford most ample opportunity for the infection of our food and drink. Does it not seem likely that flies spread disease? We no longer regard them as merely annoying but recognize in them a very important factor in the spread of typhoid fever, diarrhœa, dysentery and tuberculosis.

A single fly may carry as many as 6,000,000 bacteria at one time. The average number per fly is about 1,250,000. Early in the fly season the number of bacteria on flies is comparatively small, while later the number is comparatively very large. The method of the experiment was to catch the flies by means of a sterile net, introduce them into a sterile bottle and into the bottle introduce a known quantity of sterilized water, then shake the bottle to wash the bacteria from the bodies. A definite amount of this fluid is examined and the total number of bacteria is estimated in this way.

As you remove a fly from your bowl of soup, rest assured a few million bacteria will be left behind. Every fly which walks across your food leaves a few hundred thousand bacteria for you to ingest. These figures are approximately correct.

It has been proven that patients who have recovered from typhoid fever often become chronic bacilli carriers. Recent investigations reveal the fact that many persons are infected

and scatter bacilli far and wide without developing symptoms of the disease. Others have an attack so slight that a diagnosis is never made. Some good authorities now are of the opinion that it is highly probable that domestic animals harbor typhoid bacilli in their intestines and scatter them about the premises. This probably accounts for the prevalence of the disease in country districts.

In the light of these facts it is easy to see how almost every fly can have access to bacilli-laden dejecta. Some years ago Celli demonstrated that flies fed with pure cultures of typhoid bacilli excreted the germs in a virulent condition. The wonder is not that typhoid is so prevalent but that it does not prevail to a much greater extent.

In one of the crowded wards of Utica, N. Y., garbage dumps were used as dumps for human excrement also. During the summer months flies swarmed about these dumps and it was then that typhoid became epidemic. This source of infection was removed, and frost sent the flies to winter quarters, whereupon the epidemic ceased.

On a farm in Vermont a number of cases of typhoid fever occurred. No pollution of the water supply was discovered but investigation showed that the farm privy was unscreened and swarming with flies, which had free access to the house and the food supplies. After the privy was abandoned for more modern arrangements, and the house supplied with screens, no more cases occurred. In the same vicinity the discharges from another case were thrown into a meadow opposite the house. Flies swarmed upon the discharges and upon the table at meal time. Other cases developed and the board of health, after investigation, concluded that the disease was communicated by flies.

The Superintendent of the Board of Health of North Dakota, after thorough investigation, reports that, in his opinion, more cases of typhoid fever are caused by flies than by any other source of infection, since they carry the germs

and plant them in good culture media, such as milk, vegetables and other food products.

In the city of Seattle, Washington, a strenuous effort was made to protect the homes against flies. The first season the death rate from typhoid fever, with the same water supply, was more than cut in half. Those who carried on the campaign reported that the work produced most remarkable results.

The professor of pulmonary diseases at Fordham University states that tubercle bacilli are unquestionably distributed by flies. No one can doubt this who has seen the photograph which depicts a petrie plate containing a nutrient medium upon which was deposited a fly that had previously walked in and had got the sputum of a consumptive entangled in its feet. A glass cover confined the fly. The plate at first was perfectly clear; soon colonies, visible to the naked eye and made up of uncountable bacilli, developed upon the tract of the fly.

Drs. Reed, Vaughn and Shakespeare, sent out by the War Department during the Spanish-American War to investigate the causes of the typhoid epidemics at the various camps, reported that the milk and water were not contaminated, but that infected flies were the important factor in the spread of the disease. The excreta were deposited in trenches and covered with lime. Flies were seen walking over the food in the mess tents with their feet white with the lime of the trenches. Flies were excluded from the mess tents of the officers and certain companies by screens. But few cases developed among those who were thus protected.

The Fifteenth Minnesota Volunteers suffered an epidemic. The Minnesota State Board of Health investigated the epidemic and published their findings in their annual report. The epidemic was shown to have been caused by flies, and was one of the first epidemics of typhoid studied from that point of view.

The reports of a corps of inspectors along the water-front of New York City all showed the presence of fæcal matter; in many instances solid matter not removed by tides. During the hot weeks in summer these human excreta were found to be swarming with flies. By the use of staining fluids and by other methods these flies were shown to be traveling back and forth from this filthy material to the food of the near-by restaurants and homes. Microscopic examinations of these flies showed them to be carrying on their mouths and legs considerable quantities of the filthy matter over which they had walked, and as would be expected this matter contained many thousand fæcal bacteria. It was then demonstrated by bacterial methods that this fæcal matter containing disease germs would be strewn about on food wherever the fly walked.

A careful study of the seasonal prevalence of flies from daily counts from cages showed that they were active in large numbers in the comparatively few hot weeks of summer, while the health statistics showed that these were the weeks when an abnormal number of cases of typhoid fever and diarrhoea were contracted. The number of cases of these diseases rose with the rise in the prevalence of flies and fell with their disappearance.

Maps were made showing by black dots the location of every fatal case of intestinal disease during the fly season. A black belt was found to run along the water-front confirming the belief that filth and flies combined caused the destruction of human life. Do not think for a moment that because you do not live in New York City these matters do not directly affect each and every one of you here. These conditions exist everywhere, in our city and at every farm house, for that matter, throughout the length and breadth of our land.

I shall here refer to a few cases coming under my observation this season.

Early in the summer a case of typhoid fever occurred in a family living in a house only a few feet from a pig pen. Flies simply swarmed everywhere. After the doors and windows were screened no more cases developed.

A colored driver living in a barn, very nicely and comfortably situated, had quite a severe attack of typhoid fever. Flies swarmed about the stable in great numbers. The kitchen and dining room were not screened.

Another case developed in a family residing in a neighborhood where flies were quite numerous. The doors and windows were not screened and flies had free access to the food in the dining room.

I do not mean to say that the pig pen and stable referred to were the source of the typhoid bacilli. They attracted the flies and the flies brought the bacilli with them. Just where they get them in every case is impossible to say.

These cases show very strikingly the role played by flies in the dissemination of typhoid fever. I do not believe that water and milk were the source of 10 per cent of the extremely small number of cases of typhoid fever in our city this year. I do believe that the house-fly was the source of 90 per cent of the cases.

It is the duty of every individual to guard so far as possible against the occurrence of flies upon his premises. It is the duty of every community, if necessary, to spend money in the warfare against this enemy of mankind. As yellow fever is being eradicated with the destruction of the mosquito, just so will typhoid fever be eradicated with the destruction of the common house-fly.

It is most important that all people join in the war of extermination against the common house-fly. Let every newspaper, every minister of the gospel, every school-teacher, every physician, every public spirited man, householder and housewife in the land enlist promptly in the service to create a public sentiment in favor of destroying the "typhoid fly."

DISLOCATION OF A CERVICAL VERTEBRA.

By E. T. Dickinson, M.D., Wilson.

I have recently come to believe that dislocation of one of the cervical vertebræ is much more frequent than is generally supposed and that the condition is often considered trivial, overlooked or confused.

Ordinary knowledge of the anatomy and physiology of the cervical region of the spinal column with its delicate articulations, intimate relations of bone and nerve, and its flexibility would induce the supposition that such an accident might readily occur.

Dislocation can not be positively determined unless the vertebræ be exposed either by an operation or autopsy, or are shown by the X-Ray. Autopsy has shown dislocation when fracture was diagnosed and fracture when dislocation was diagnosed, and in many cases the nature of the lesion may not be at all determined or even suspected.

There are several degrees of dislocation of the vertebræ. The slight subluxations, which are most common, produce no pressure on the cord, but give rise to more or less local discomfort because of pressure upon the spinal nerves passing out between the vertebræ. This irritation causes nerve disturbances which are referred remotely from the site of the lesion, namely, at the peripheral distribution of the nerves, and are manifested as peripheral pain, muscular weakness or trophic derangements.

Dr. Henry P. deForest has shown by careful study of cases, by dissections of the spine, and by treatment of a large number of persons with these subluxations that they are quite common, and that they are responsible for many incorrect diagnoses.

Beyond these slight subluxations must be every degree of dislocation up to the extreme lesions causing pressure and

even destruction of the cord. Contrary to the sham diagnosis of the prevalent quack all of these luxations and dislocations occur in the cervical segment of the spine, because of the greater mobility of the vertebræ in this region and because of the lesser degree of tendinous strength and the lesser extent of bony apposition. Data is yet insufficient to enable us to determine the relative frequency of fracture, dislocation, and fracture—dislocation. More post-mortems and X-Ray inspections should be made.

Most cervical dislocations result from extreme flexion of the head upon the thorax, the sternum often being broken by impact of the lower jaw. Dislocation may be either forward or backward. If the dislocation is forward one or both articular processes ride over the corresponding processes of the vertebræ below and rest in the intervertebral notch. If the dislocation is unilateral there is pressure upon the cord.

The case which I wish now to report shows symptoms of nearly all varieties of cervical dislocations. The final result was the bilateral posterior variety, being dislocation of the third cervical vertebra with pressure upon the cord.

On April the fourth while passing the house of a merchant aged about thirty, with family history negative, I was called in with a request to give some morphine which his physician had advised earlier in the day but which had been refused by the patient because the pain was not very severe and he thought this due to a little rheumatism which he supposed he had had in his neck for several weeks. Having given an ordinary dose of morphine hypodermically I heard nothing from the patient until three days later when his physician called me to see the patient with him. I found the head held steadily forward and fixed almost as if in a vise. So great was the fear of moving the head that the patient had maintained for four days and nights the one position he had assumed, sitting in a Morris chair. At the end of the fourth day he was prevailed upon to lie down at bed time.

After getting fixed in the recumbent position the patient suffered a little more than the usual discomfort and early in the morning it was learned that there was complete paralysis of the upper and lower limbs of both sides, although the patient retained perfect consciousness and rationality. This lasted several hours when the patient rapidly lost consciousness and died about noon.

An autopsy was done at my request by Dr. V. A. Ward and the attending physician, Dr. W. T. Turlington. The third cervical vertebra was found dislocated backward, pressing decidedly upon the cord.

At the time of my second visit to this patient I almost accidentally discovered a small prominence toward the upper cervical region and in the median line about the size of the prominent spinous process of the seventh cervical vertebra. Learning that the physician in charge had not discovered this I asked the patient to feel. He stated that he had not known of its presence and was sure that it was of recent occurrence. This circumstance made autopsy very desirable, and the physician was very fortunate in securing this privilege.

After discovering the tumor we learned from the patient himself as well as his wife that the latter decided that as he had been going with an ugly crick in his neck for several weeks she might playfully duck his head and break the habit. It was at this juncture that the dead-lock came, putting the patient in the unchangeable position in the Morris chair.

As there was no rheumatic history there is room for supposition that this first complaint of crick was due to subluxation and that the playful ducking of the head converted the condition into complete bilateral dislocation which was found at autopsy. The paralysis must have come from the little additional strain and pressure upon the cord due to the assumption of the recumbent position.

FOREIGN BODIES MIGRATING THE HUMAN BODY—REPORT OF CASES.

By Brodie C. Nalle, M.D., M.A.
Professor N. C. Medical College, Charlotte, N. C.

The rather unusual reports of the occurrence of foreign bodies migrating human bodies without disastrous effects, has prompted me to report the following cases:

In the first two cases the possibility of these foreign bodies having entered the bodies of these patients since they have been old enough to be cognizant of such accidents has been excluded, both patients being very intelligent people and knew nothing of the cause of their trouble until the discovery of these foreign bodies.

Case I. A male, 40 years old, splendid health. March, 1907, while jumping to a sidewalk, he felt the sensation of having torn a muscle in his thigh. The following day, examination showed a discoloration of the skin in the region of the pain and walking was very painful. Two days later, I saw the patient at his home and discovered the point of a needle protruding from the skin. It was caught with an artery clamp and a darning needle, 2 3-4 inches long, was drawn from his thigh, lying at right angles to the long axis of the leg. The patient can not remember any unusual pain previous to this time, which could have been attributed to the migration of this needle.

Case 2. Female, white, aged 28 years, married five years, one child four years old. Patient has complained of pain in the left side, in the region of the left ovary for the past three years. Sometimes the pain was excruciating and of a sharp lancinating character. She has been frequently examined and, in each case, pronounced a neurasthenic. In June, 1907, at her husband's and her request, an exploratory laparotomy was done, and a brass pin, one inch in length, was found imbedded in the posterior layer of the broad liga-

ment on the left side. The patient had a short convalescence and has since been relieved of all her pain and nervous symptoms. She has gained 20 pounds in weight and is enjoying excellent health.

The fact that neither of these foreign bodies could have gained admission without the knowledge of these patients, and since both patients are very intelligent and have no motive for deceiving, we are brought to the conclusion that these bodies gained admission during infancy; and whether by mouth or otherwise, must have been migrating these patients for these long times.

Case 3. In this, the manner and approximate time of the entrance of the foreign body is known. This case was operated on for pancreatic cyst. The sack was stitched to the abdominal wall and narrow gauze strips, about a foot in length, were used for drainage. At the end of ten days the wound had stopped discharging and was allowed to heal. The patient left the hospital at the end of three weeks and resumed his work as a drayman at the end of the fifth week. At the end of the eighth week he came to my office, complaining of constipation of a week's duration. After taking a prescription of a dozen C. C. pills, he returned in three days and said that he had brought with him the cause of his constipation, and produced it in the exact size and shape of the gauze strips which we had used in draining his wound. On that morning he had passed this strip per rectum. There was no connection between the cystic sac and the lumen of the intestine at the time of the operation. As unpardonable as the occurrence may seem, the fact remains that this strip of gauze was left in the sac and from there it penetrated the wall of the intestine and passed by rectum. The journey of the gauze was made without the knowledge or discomfort of the patient, except that of constipation for a week. The patient is still driving his dray and enjoying good health, and will soon celebrate the second anniversary of the passage of the gauze.

PREGNANCY COMPLICATED BY MALFORMATIONS OF UTERUS AND VAGINA.

By James N. Taylor, M.D.
Superintendent of Health of Chatham County, Bynum, N. C.

The following case is reported because of the rarity of the condition present and for the reason of its unusual interest.

Mrs. P., married, aged 16. A few months after the patient married she consulted me for relief of pronounced dysmenorrhea. Thorough examination of the pelvic organs was refused at this time, as patient was not only very young but also very timid. She was, therefore, placed on symtomatic treatment, which was ineffectively continued for some weeks. After several months she was seized with an acute attack of uterine cramps, apparently caused by contraction of the uterus in effort to expel the menstrual flow. This symptom was only relieved by opiates hypodermatically. After this experience the patient readily consented to a local and vaginal examination. Upon digital examination I found a septum dividing the vagina into two parts, which ran diagonally from above downwards. On introducing Sims's speculum it was discovered that a double vagina and also a double uterus present. Each half of, or each uterus and vagina, seemed smaller than the normal organ. By abdominal palpation the outlines of the double uterus was easily determined. The cervix of each uterus was dilated with the hope of relieving the suffering attending the menstrual period, but this treatment did very little good. After trying every available treatment that I thought would be of service I advised the patient to enter a hospital for operative relief. To this she readily consented to but deferred doing so until fall. In the meantime she stopped menstruating. I was called in and found symptoms of pregnancy. She suffered considerable nausea and vomiting, which were relieved with difficulty.

For some time it was a puzzle to know which uterus was pregnant, but after three months, by digital examination with palpation, I discovered the right uterus much larger than the left and was situated in the right side of the pelvic cavity. The patient went through the period of gestation without any trouble. In fact, her health was better than usual. At full term I delivered the patient of a fine boy weighing 10 pounds, after a very hard labor lasting about 12 hours. During the period of labor the left uterus was dilated so that I was able to introduce my finger inside. In this way I discovered this uterus was separate and distinct from the right. The patient did not suffer any laceration of either vagina or uterus, and made a good recovery, and at present enjoys better health than before.

DEAD FETUS SEVEN MONTHS, COMPLETE PLACENTA PRÆVIA ASSOCIATED WITH ROUND WORMS.

By J. W. McGehee, Reidsville.

The case I wish to quote has many interesting points as to etiology, symptomatology, diagnosis, prognosis and treatment.

History: Mrs. G. _____, age thirty-seven, married at the age of twenty years. She has five living children, each labor being natural and normal. Mother's age at the birth of these children was twenty-one, twenty-three, twenty-four, twenty-six and twenty-eight. The sixth child was born when mother was thirty years of age; normal labor, but child died on the fifth day with jaundice. At the age of thirty-one years she gave birth to a seven-months dead hydrocephalic fetus. At and prior to birth of child her face, hands and feet were swollen, and following birth of dead fetus her general health declined and she had leucorrhea and other symptoms of endometritis. At the age of thirty-two she gave birth to a dead seven-months fetus. Twelve hours prior to labor had a profuse hemorrhage, and one month after labor had a free discharge of blood. She was very much swollen prior to labor and afterwards continued to have leucorrhea and other symptoms of endometritis, and her general health declined. At this time she consulted Dr. W. A. Johnson, of Monroeton, and improved under rest, hot douches and tonic treatment.

Five years later, at the age of thirty-seven, became pregnant. Although her general health was not good she was able to attend to her household duties until the seventh month of pregnancy, at which time she had a slight and often repeated uterine hemorrhage; was blue and depressed and breast was soft and flabby. About the tenth day after the

first hemorrhage had a rather profuse hemorrhage and called in Dr. Johnson. He at once made a diagnosis of dead fetus and 'phoned me stating the case as above. I advised him to wait a few days and see if uterus would not empty itself naturally, and at the same time watch her and if she had any profuse hemorrhage or developed any fever to let me know at once.

I might say just here that in the two previous premature labors there was not any effort on the part of nature to empty the uterus, and it was necessary to assist nature. Three days after 'phoning me, at an early hour in the morning, he again called me to come at once as Mrs. _____ was bleeding freely. I went at once and on arrival made inquiry into previous and present history. Found breast soft and flabby, woman depressed and blue; no fetal movements for past ten days, and I was unable to hear fetal heart, so decided that fetus was dead and prepared to deliver her.

Dr. Johnson, with the assistance of two women, placed her in position and administered the chloroform, while I scrubbed my hands and prepared patient for delivery. I only had a dish pan for my instruments and a small pan for my hands and patient. Patient anesthetized I introduced my finger into the vagina and found cervix soft and dilated the size of a silver dollar. Then I introduced my finger into the cervix and found I had a central placenta prævia to contend with. I at once told Dr. Johnson and her sister what I had found and stated that I did not know what would be the result, as it was a dangerous condition. I at once dilated cervix with my hand and went through placenta and did an internal podalic version and rapid extraction of fetus. The placenta was easily removed and the loss of blood was very little considering her condition. Patient soon came from under the influence of the chloroform and seemed to be doing nicely when I left. This was my first and only

visit, as I left her in charge of Dr. Johnson. He frequently 'phoned me in regard to her condition.

For the first nine days after labor she ran a temperature of from 99 to 100 3-5. I advised Dr. Johnson to give her strychnine, grain one-thirtieth, before meals and iron and arsenic after meals; also to give her a vaginal carbolic douche twice a day, as I feared she had a slight infection. From the ninth to the fifteenth day her temperature was normal. During the first fifteen days the discharge seemed to be normal in every way, but she complained of a slight soreness and tenderness over abdomen, and pain in right hypochondriac region. On the 16th day following labor temperature went to 104, pulse to 110, and she passed a roll of round worms from her rectum. After this she was given calomel and santonin, followed by castor oil and turpentine, but she passed no more worms, and her temperature gradually came down.

The last report I had from her was in March, 1909. At this time she was able to attend to her household duties, but continued to have leucorrhea streaked with blood. She complained of being weak; was anæmic and looked tired and worn. I advised curettement and repair of old cervical and perineal tears.

In looking into the causes of placenta previa I find the most frequent causes to be endometritis, frequent and multiple pregnancy and nephritis; all of which were prominent symptoms in this case.

AN ANALYSIS OF EIGHTY CASES OF LABOR.

By K. P. B. Bonner, M.D., Morehead City.

In presenting this subject for your consideration, I shall endeavor to make it as entertaining as possible, because I realize that papers of a statistical character are for the most part dry and uninteresting. With this assurance on my part, I am sure that you will bear with me in patience. Some of the results obtained are greatly at variance with the text-books on obstetrics. This may be accounted for, in part, by the small number of cases reported, but the majority of the differences can not be charged to this cause.

To begin with, twenty-four, or 30 per cent of the women, were primipara, and the rest fifty-six, or 70 per cent, were multipara.

Sixty-nine, or 86 per cent of these cases were vertex presentations, which is about 10 to 12 per cent lower than that given by most authors. Forty-five cases, or 56 per cent of the whole number, or 67 per cent of the vertex cases, were L. O. A. positions. Nineteen, or 23 per cent of the total, or 27 per cent of the vertex presentations, were R. O. A. cases. Six per cent of the total number, or 7 per cent of the vertex, or five cases, were R. O. P. positions.

Nine, or 11 per cent of the whole number, were breech presentations, and all of these were in the S. L. A. position. Three per cent, or about one in thirty, is the frequency given by most text-books for this position for both premature and mature children.

Two cases, or a little over 2 per cent of the whole number, were face presentations, and all or both were M. L. A. One case was a transverse presentation with an arm presenting at the os, but this was converted into a foot by a podalic version.

Pathology.—Of the eighty cases, convulsions occurred in seven cases, or 9 per cent, of which five cases, or a little over

6 per cent. were, undoubtedly, due to toxæmia, or in other words were eclampsia. Of the other two cases, one was, in all probability, due to epilepsy and the other to hysteria. Four cases were ante-partum eclampsia—occurring about the sixth or seventh month. The other cases occurred during labor, with one exception—this case was at term, labor was induced and the child delivered by forceps. A great many of you will say that this is a large percentage of eclampsia, in view of the fact of our present knowledge of its prevention; and it would be a high percentage among intelligent people, but in the majority of these cases I did not know that the women were pregnant until called in to treat them for the eclamptic convulsions. Some, even after repeated cautionings to consult me at the first symptom of toxæmia, would let the trouble go on until it finally terminated in the eclampsia, knowing at the time that their lives were jeopardized as a result.

I have been very fortunate in that I have never had a case of post-partum hemorrhage or puerperal infection, and no deaths among the mothers as a result of the labor. Two cases came under my care in which the mothers died in a month or more after the birth of the child. In one of these cases the mother had contracted a case of pneumonia (double), which induced labor, and an eight months child was born after a protracted labor. She passed the crisis of the pneumonia but developed empyema of both pleural cavities to which she finally succumbed. Underlying the whole case was a chronic case of phthisis of several years' standing. The other case, of the mother who died, had no elevation of temperature during the puerperal period, sat up on the ninth day and was about the house by the third week; but developed intermittent malarial fever during the fourth week, which quickly changed to a malignant type and she died just a month after the baby was born, of a congestive chill.

It has been my misfortune to encounter one case of pla-

centa prævia (central) with a cross presentation. Convulsions, in this case, had induced premature labor and I was enabled to check the hemorrhage by performing podalic version and using the legs and hips as a plug for the os.

I have found it necessary to deliver eight cases, or 10 per cent, by forceps, four of which was on account of convulsions and four on account of a prolonged labor with a weakened condition of both the contractions of the uterus and the mother. I have, also, had very few perineal tears, and the few I have had could be repaired with two or three sutures and would not have impaired the integrity of pelvic floor if unrepaired.

One case of a contracted pelvis occurred. In this case there was a prolonged and hard labor which resulted in a still-born child. This was a case of transverse contraction due to a deformed hip-joint.

Two cases, or something over 2 per cent, were twin labors, making a total of eighty-two children in the eighty labors. Of the eighty-two children, twelve, or 14 per cent, were still-born. Of this number seven, or 59 per cent, were premature, and four of the premature children, or 33 per cent of the still-born, were macerated. Forty-one per cent (or five cases) of the still-born children were full term. In three of these cases the cause of death was due, in all probability, to prolonged pressure and asphyxia. Most of the still-born children were due directly to eclampsia. I have found that practically all of the children die when the mother has had true eclamptic fits. In fact, if the mother has ante-partum eclampsia, the child usually dies in utero, and even though there is only a six or seven months fetus in the uterus, labor may be expected within two weeks anyway, and we may also expect a dead and macerated fetus. I say this because this has been my invariable experience in ante-partum eclampsia. Even in puerperal eclampsia the child will more than likely be dead unless delivered immediately by forceps.

Of all the children born, sixty-one, or 73 per cent, are now living. Twenty-one, or 27 per cent, are dead, of which twelve, or 45 per cent of the dead, were still-born. In other words, of seventy live-born children 87 per cent are now living and only 13 per cent dead. Of the children which died after birth, three died in the first week, one of which died as a result of forceps injury. The other two died of obstruction of the bowel, probably congenital. Five, or 25 per cent, of those dead died of digestive troubles due to faulty assimilation. The other one died of diphtheria at two and one-half years.

Of the children born, forty-six have been boys (55 per cent) and thirty-six girls (45 per cent), and of the now living, thirty-five are boys and twenty-six girls. The average weight of the boys has been eight pounds and one ounce; while that of girls has been eight pounds, fifteen ounces. This shows the average weight of the girls to be fourteen ounces more than the boys. The average weight of the two sexes is eight and a half pounds, which is one and one-quarter pounds heavier than most authors quote. You will, also, notice that the girls are nearly two pounds heavier than they are usually given credit in most text-books. The boys, also, make a gain of a little over a half pound from what is usually quoted, but their gain is not enough to keep them ahead of the girls. The usual figures quoted are seven and a half for boys and seven for girls—seven and a quarter pounds for the two sexes. My figures differ materially from the usual statistics. The largest baby which occurred in the eighty-two was a girl which weighed fourteen and one-fourth pounds; and the smallest was a boy which tipped the scales at four and a quarter pounds.

Another result differing greatly from that of the usual observers, was the time of birth. I find that of eighty-two children born, forty-five, or 54 per cent, were born between 6 a. m. and 6 p. m., while only thirty-seven, or 46 per cent,

were born between the hours of 6 p. m. and 6 a. m. This shows that the majority were born in daylight instead of at night.

As to the duration of labor, I am unable to give any reliable data, because in a great many of the cases I was called in only after labor had nearly reached the completion of the second stage. However, I have seen cases in which all of the stages of labor only occupied an hour; on the other hand, I have seen a few cases last as long as eighteen or twenty-four hours. I think I can truthfully say that the average time from the time I am called to the time of the third stage of labor will not exceed four hours.

THE SURGICAL TREATMENT OF EPILEPSY.

By Rigdon O. Dees, M.D., Greensboro.

To understand the true nature of a disease and its proper treatment a familiarity with its pathology is essential. In the condition of epilepsy the pathology is unfortunately obscure and the same obscurity exists as did in the days of Hippocrates.

All forms of medication have been exhausted in the treatment of epilepsy without success, or at least with only temporary success. Therefore, at the present time surgery seems to offer the only means of hope in the relief of the condition. There is a great deal of speculation by some as to the final outcome of cases operated upon, but it does seem that operation would be justifiable, if we can bring about a cure in 15 per cent of the cases, or even 5 per cent of the cases.

The statistics of large and small series of cases operated upon for epilepsy in its various forms show 30 per cent to 50 per cent recoveries; 18 per cent to 25 per cent improved and others, of course, not benefited, but seldom is the case made worse.

The cases passed upon, covering periods of from one to ten years, several cases unfortunately relapsed during this space of time. A permanent cure only can be claimed after a long observation of cases operated upon, and those claiming cures when only a short time has elapsed, say three or four months or a year since operation, can be looked upon with a certain amount of doubt. Some observers take from three to five years as a reasonable length of time for an arbitrary cure.

We know that one, or more than one, of several things may be the exciting cause of epileptic seizures. It may be some reflex disturbance as an adherent prepuce—a scar—

and especially of the scalp, but more often we find some symptom or symptoms of a condition of the brain proper or of the cranial bones or of the membranes of the brain—or a tumor, an abscess, syphilis, etc. These very conditions make it essential for success that all patients, before being subjected to operation, should be thoroughly examined and should be seen in an epileptic seizure by the surgeon himself or some competent and reliable attendant.

Epilepsy in its ravages does not discriminate; it attacks the high, middle and lower classes of humanity. It may be of interest to note that Julius Cæsar and Napoleon Bonaparte were victims of epileptic seizures, and in their day and time surgery was not in a state of perfection as it is now and no one could hold out to those distinguished men the least ray of hope for their relief.

The technique of the operation will not be entered into here, but will state that boldness will many times mean success— a large osteoplastic flap should be removed over the area to which the symptoms point. If, however, such an involved area can not be made out the flap may be made over the rolandic area on either side.

In a large number of cases the mere opening and draining of the cranial cavity bears the same relation to epilepsy as does opening and draining the abdominal cavity in tuberculous peritonitis.

When we are confronted with the facts of the complete hopelessness of the epileptic in his or her present condition, and also to the prevalence of the disease or condition, it occurring in the ratio of one in every 500 of the population, and to the debarment from the social and business world on account of their condition, it does seem that any operation with a view to correcting the condition and bringing about relief is a justifiable procedure.

THE BUSINESS METHODS OF THE PHYSICIAN.

By Edwin G. Moore M.D., Martha Moore Home, Elm City.

Mr. President and Gentlemen: I have formulated no prescribed rules nor attempted any specific directions by which you gentlemen may hope to learn from me how to direct yourselves into the roadway of business success. I can not, in the compass of a short paper, touch many salient and essential facts; besides, each one is expected to contribute to this important symposium, and it shall be only my purpose to speak in general terms, leaving you to contribute from your judgment and experiences such facts and knowledge as may be necessary to the finish of this paper.

Some one has written a book on "The Doctor's Wife," another on "The Doctor Himself," and to all of the younger brethren I would commend the perusal of these books, especially "The Doctor's Wife," who is often made to suffer most at the hands of him who has promised to protect and defend her.

The "Code of Ethics" is a marvelous product of mind and heart, superb in literary design, ideal in conception of human love and human duty, touching only the high places of conscious virtue with the wooing influence of poetry and song. I have heard and read many tender and touching tributes, from divers sources, extolling the virtues and prophesying the rewards of our beloved profession, and I have been made to feel glad that I was a comrade, and could claim fellowship, with that noble band of men who go about on earth doing good and hoping to receive their crown of reward in the life everlasting; but, so far as I now recall, I have neither seen nor heard any suggestion devising ways and means looking to the promotion and betterment of their material comfort and prosperity. So long neglected, this may yet be one of the triumphs of the twentieth century, and it may be possible

that at some distant day medical colleges, to meet the growing demands of the profession and the public, will establish a chair of "bi-metalism" and "economics," and State examining boards will require a sufficient evidence of proficiency in this branch or department of knowledge that will at least give assurance of the candidate not becoming a subject of poverty or a charge of charity.

The subject which has been suggested—"The Business Methods of the Profession"—I hardly know whether to treat seriously or in a lighter vein. I am not sufficiently advised if the profession has any "business methods." Those of you who are so informed will have the opportunity to enlighten me, and while I have walked only the beaten paths of a country doctor, moving in silence, and oftentimes in darkness, yet would I welcome the light and rejoice in its gladness. I have often felt impressed that, of all the professions, it was the least businesslike, and had, perhaps, less of method and business direction. I will not be going very far wrong to state that every trade, profession or vocation is either a question of choice or a matter of environment; a volition of purpose or a coercion of circumstances, and in either event it is the individual fitness or adaptation that qualifies or disqualifies the measured terms of success. Barring a few cases of accidents, success in any line, without exception to medicine, is dependent more upon the external fitness of the individual than to any coexistence of circumstances. The intellectual, moral and industrial elements, or attributes, of character must be blended and harmonized before the world can stand up and count him worthy of success. A genius without energy or moral character scales no altitudes and reaches no preeminence; and misdirected energy, however much it toils, or suffers, or hopes, fails of progress and languishes in defeat. Men may be born equal, but, if so they fail to maintain this equality. Success may be possible unto all men, but facts prove not along the same line, nor of the same kind. We need no historian, nor biographer,

nor philosopher to tell us these facts, for we have only to look about us and behold for ourselves. Who among you does not respect the life and memory, the mind and character, of those wise, kind-hearted and courtly gentleman in medicine who helped to initiate this Society, and gave it their support and encouragement, and walked among us as our counselors and friends? Who did more to uplift the high character of our profession, by precept and example, than the courtly and chivalric Dr. Ruffin; and who did more of kindly deeds of charity, and bestowed more of generous labor, than the genial and kind-hearted Dr. King? Each a striking individuality, yet, above all, a gentleman. Who, among our citizenship, does not feel a sense of pardonable pride that Wilson County had the material, and the man, who, irrespective of conditions and circumstances, could measure up to the standard requirements and the crowned heights of a Federal Judgeship? Do you tell me this is luck, or, if you please, an accident? I could not, and would not believe it if you did. I answer it is but another proof of the reward that grows out of that trinity of virtues—intellect, energy and character.

Without assuming further controversy, and to be more concrete in expression, I would propound the query, "Why do we practice medicine?" Are we actuated by a distinct mercenary spirit, or, are we missionaries in the field of philanthropy? Are we engaged as a matter of livelihood, a breadwinning proposition for ourselves and dependents, or as a sportive recreation for pleasure and pastime? If either proposition be accepted, then I would, in humility, yet in truthfulness, suggest that lawn tennis, golf or membership on a baseball team would afford more merriment, and possibly more money; certainly an easier job with more reputation, though fleeting and ephemeral.

I am strongly persuaded that he who enters this profession with the view of money-making or money-getting, has not only missed his calling but his election also. The indiffer-

ent, the lazy, the indolent fellow in search of an easy task, where he may find delight in the rose garden, or rest under the shade of the tree, had best "seek him another job." The ambitious seeker for distinction, or applause, may likewise be directed to other and fairer fields, easier of access and more fertile in results.

But to the virile man, the earnest worker, the seeker after scientific truth, and with the purpose to contribute in some measure toward the alleviation of human suffering, and the uplift of his fellow-man, it offers an inviting field, broad and wide, and teeming with possibilities. But the laborer is worthy of his hire, and a life devoted to such work, and consecrated to such purposes, deserves, and should have, such compensation in material things, as will conduce, not only to his physical comfort, but insure his own self-respect. I would not indulge the hope of riches, but you are entitled to a competency of support commensurate with the skill you dispense. To the most of us, medicine is our profession and our business, our vocation, and the sole contributing factor as our means of a livelihood. It behooves us to give it our best service, and demand of it its best rewards.

Happy is he who is content with his choice, and finds the peace of satisfaction in its field of labor. As Elbert Hubbard tersely says, "If you don't get happiness out of your work, you will never know what happiness is." He who does not feel a keen and abiding faith and interest in his work, fails in the higher and more dignified development of his own personality, and contributes but little of real value to the support and growth of his chosen profession. It is such an one who becomes the unhappy, driveling, subject of a jealous mistress; out of harmony with its true aims and purposes, and the unmethodical, and unbusinesslike personality that so frequently goes down in defeat and failure.

The public may not judge you aright. It may be you are criticised too adversely, or accredited with skill you never

possessed; but every man is conscious of his own strength, or his own weakness, with a definite certainty unknown outside the realm of his own conscious mind. But I want to tell you a secret, a truth founded upon facts learned by observation and experience, and it is this: the public has neither appreciation nor respect for a real poor doctor. He commands neither their esteem, nor their patronage, while toiling here on earth, and it is only when, footsore and weary with the race and burdens of life, he lays himself down in the slumber of death, that mourners gather about his final resting place, and, with a benediction of simple words speak a modest farewell to his departed spirit.

The public spirit, and the public conscience, demand that a doctor shall be competent in skill and knowledge, honest and zealous in his work, cultured in manner, and safe in character, and it has never objected to pay the price necessary to give adequate support to such of the profession. Bad pay, and inadequate support, does not arise de novo with the public, but is usually chargeable to the directness, and indirectness, of the individual members of the profession.

You have given me the liberty, and I am going to make a rather startling statement, but I won't publish it. I am only telling it at the hearthstone of our family circle, and I don't want it to shock even the sensitive. The public has been long-suffering, and endureth much, and I have no doubt some doctors have but little cause for complaint when they stop to consider the quality of service they barter in exchange. A doctor who is not informed in the accepted teachings of his profession, and does not make due effort to acquaint himself, but is content to blunder along in a misshapen and careless way, indifferent to the best interest of his patient, and oblivious to his duty, and the demands of his profession, in my opinion, gets all that belongs to him, let the credit sheet be ever so small. Mediocrity is the one great barrier in the way of genuine progress. We attempt too much of labor,

and do too little of real scientific work. There is too much of jealousy, and too little of true fraternal spirit. A generous rivalry is a healthy stimulus to greater and larger development, but a harsh and bitter antagonism is the essence of all littleness, and is to be forever despised. It is a method and policy with some, and, in fact, it is their stock in trade, to wage a ceaseless and eternal warfare of direct, bitter and personal antagonism against other members of the profession, or secretly, by insinuation, or uncharitable criticism, under cover, endeavor to cripple their influence or hinder their progress. This is a measly and contemptible means to an end, the sole purpose of which is to build himself up by the destruction of another, without regard to cause or effect. Such poor policy is the growth of a poorer mind and heart, whose day of judgment is near at hand. I pity the poor deluded soul who knows it all, and, seeing no virtue in others, boosts himself as a pattern of excellence, and a paragon of wisdom, for he surely "sees through a glass darkly." A professional braggart bears a close relationship to a professional liar, neither of whom can be trusted or believed.

We can no longer afford to wage war upon each other in the private toils of our work, for it is a deadly foe to our fraternal peace, disastrous to our professional progress, and a dangerous enemy to our best business interests. We are told "a house built upon the sand" can not withstand the fury of the tempest nor the ravages of the storm, nor can a life without character as the bedrock of its foundation withstand the struggle for its existence with which it must contend.

Especially will you find it true in medicine, that her labors are exacting, even burdensome at times, and the exigencies of environment, and the increased demands of modern society, will call for the highest art and diplomacy to provide the essentials, and necessaries, for the maintenance and support of a combined professional and domestic life. It can

not be said of her, that her ways are ways of pleasantness, and her paths, paths of peace"; but rather a hard-fought battle, a tense, strenuous life, full of labor and of duty, but with a reward of victory to all who are faithful and true.

Viewed solely from the vantage ground of business methods, it pays to be a wise man, learned in knowledge and science, skilled in art and culture, honest and truthful, dignified, yet polite and courteous, humane and charitable, courageous and manly in all things that elevate and ennoble a true character, and constitute a true gentleman.

Meet your own obligations to your creditors, and make your debtors meet theirs. Do your part of real charity, or all of it if you wish, but require people who can pay you to do so. They will think more of you, and you of them. Be just in your charges and collect it, but don't render nominal service, thinking to increase gratitude or hold patronage, for it will not do it. Measure your fee by the value of your service. Don't make other people pay for your own mistakes. If you haven't knowledge, then get knowledge, for there is plenty for sale. But don't get too wise, especially in your own conceit. Don't know it all; leave a little for the other fellow, to prevent atrophy and stasis, when you are gone. Try to be professional, if they will let you. Be charitable to the old doctor, and merciful to the young. Don't be the dog in the manger, but be a gentleman of culture and character, a laborer of energy and purpose, and a good doctor, who, conserving all the rich elements of manly virtue, hopes only for that which is wisest and best, and strives to attain it.

EPIDEMIC PNEUMONIA WITH A FEW SUGGESTIONS ON MANAGEMENT.

By Stuart Mann, M.D., Moyock.

Mr. President and Gentlemen of the North Carolina Medical Society: In offering an outline of epidemic pneumonia it is not my object to enter into the etiology, pathology and symptomatology of this most dread disease, but to try to present a brief synopsis of my cases taken collectively. To present these cases in detail would be irksome and would consume too much valuable time.

During the early spring there came under my consideration and care seventeen well-defined cases of pneumonia, varying in type from lobar, lobular, pleuro-pneumonia and migratory. In four of these cases there was abscess formation, necessarily complicating and greatly prolonging the disease. Three of these cases formed fistulous connections with a broncus and ruptured spontaneously thus becoming effectually relieved. The remaining case of lobar pneumonia was followed with considerable abscess formation. This case describing irregular fever, profuse sweats, especially at night, spasmodic cough which indicated a disposition of nature to relieve herself, which was only partially done. I afterwards referred the case to the hospital for drainage.

I recall one case which at first presented all indications of lobar pneumonia, the congested area being well defined, the remaining lung being comparatively clear. Within twenty-four hours there was a general catarrhal condition of both lungs, defining the migratory variety. This case was an alcoholic, age fifty-seven. It is noticeable in all cases of bad personal history that there is some special interruption in the crisis. A similar condition occurred in case N_____, age fifty-eight, who had been a regular drinker all his life. He was taken in the usual way with lobar pneumonia, vio-

lently ill from the beginning, he however, reached the usual crisis by the ninth day, temperature, pulse, respiration and general condition good with the exception of some insomnia. When suddenly the nervous symptoms became augmented, delirium of the maniacal type supervening so that a constant attendant was required to assist the nurse, succeeding in causing this patient to sleep for twenty-four hours. There was decided improvement and the case made a tedious but good recovery.

In still another case of lobar pneumonia which was describing the usual course there was on the sixth day a complete occlusion of the bile duct and phlegumonous tonsilitis. This complication I regarded as being extremely grave, however resolution took place and the pneumonia cleared up thoroughly and effectually. Hepatic and gastric irritation developed the most obstinate case of hiccoughs and it became necessary to control this with anodyne.

The order in which my cases occurred are as follows:

Family P_____ of ten exposed, seven contracted the disease. Family C_____ of eight exposed, four contracted the disease. Family R_____ of six exposed, two contracted the disease. Family R_____ five exposed, two contracted the disease. Making fourteen cases. The remaining three cases occurred independent and there was not any reinfection that I know of. All except two who described the lobular or catarrhal form were under twelve years of age and the physical signs of some of these cases for a time were frequently indefinite, being in some instances of secondary origin which necessarily reduced the vital forces before an absolute diagnosis could be made. It might be worthy of note that there was considerable gastric and abdominal disturbance requiring in several instances intestinal antiseptics.

The cases of lobar pneumonia of primary origin have less complications and run a more favorable course. Therefore in the event of endemic or epidemic pneumonia it is well to

institute a provisional quarantine and a prophylactic treatment. A recent method in the above families along this line was to have all neglected colds attended to at once with mouth and nasal antiseptics, and if practicable isolation. I am frank to state that if this had not been insisted upon there would have been other infections. Considering the above I regard pneumonia infectious and in great danger of spreading itself unless some means are taken to suppress it. The family physician should be watchful and cautious in this respect. Some of the leading text-books give vivid and able descriptions of this dangerous disease, but they do not insist on quarantine. It is agreed that pneumonia is a widespread disease, yet we have no specific treatment, and I know of no condition in which I feel any more incapable of treating than when I realize a stubborn case of pneumonia.

TREATMENT.

General Management.—The room should be well aired and kept at a temperature of about sixty-eight degrees Fahrenheit. In all cases it is well to have the bed raised to enable the nurse and physician to conveniently get at the patient. All of the linen should be removed from the patient except the nightshirt and this should be open all the way down the front, thus facilitating convenience for counter irritants and the application of the chest binder. The sputum should be disinfected or burned. In all cases of severe pneumonia I would insist on securing a trained nurse. This may seem impossible in some cases, yet when we consider the outcome of poorly nursed cases it is invariably satisfactory in the end.

During this recent epidemic it required the services of three trained nurses, in the absence of whom I might have lost several of my cases, for when we have serious complications like cardiac depression or pulmonary œdema it is necessary to have a physician or a trained nurse in constant attendance.

Diet.—Diet should be guarded carefully. It should be liquid of the most nutritious character. Milk is an ideal food if properly digested. Many times, however, this is decidedly irritating, especially when there is fermentation. Albuminized water or albuminized grape juice, broths, scraped beef or beef juice. Alcohol has considerable food value, but should not be administered at the beginning unless especially indicated.

Fever.—This should be considered very carefully. In the beginning if the patient is plethoric with full bounding pulse I usually give Norwood's tincture of veratrum viride pushed to physiological effect. If the desired results are not obtained I do not continue its use. I have seen some happy results in the beginning of pneumonia by this treatment, however, I never give it later than the second day. In cases where the temperature is high it is far better to use hydrotherapy followed by alcohol rub. Never prescribe antipyretics at all unless in exceptional cases and the condition watched by a competent nurse. The main object is to support the vital organs until the crisis is past.

Medicines.—Usually in the beginning it is well to act on the portal system with mild chloride and watch the elimination frequently especially if there is any disposition toward fermentation. In several of my cases it was necessary to use salol and turpentine or the sulpho-carbolates.

Stimulants.—When the first sound of the heart becomes less distinct and the pulmonic second sound loses its accentuated character or marked nervousness, I usually order alcohol combined with nourishment and combined strychnia with the carbonate of creosote every four hours. If this does not suffice I give digitaline combined with or without strychnia and where the urinal secretions are scant also combined with spartine 1 gr. If the above is not satisfactory and there is especial cardiac depression and pulmonary œdema I give adrenalin-chloride (P. D. & Co.), ten to twenty drops hypodermically to be repeated as indicated.

I wish to especially mention this as a most excellent remedy as my results have been uniform in equalizing the circulation and relieving the œdema.

Pardon the digression, but in a case of shock with pulmonary hemorrhage in which the heart was running away with itself, so to speak, acting like an engine without a governor, I know of nothing that will equal the adrenalin-chloride.

Pain and Cough.—I always aim to control this with a neat fitting cotton jacket as far as possible. When necessary I give codeine or heroine, and under no circumstances do I give morphia where there is any cardiac depression and œdema. In pleuro-pneumonia I frequently apply ordinary fly-blister which usually relieves the pain and gives a nice sore to treat.

Insomnia.—I prefer two grains of verinal, three of sulphonal, and one-tenth grain of cascarine. I do not like hyoscine on account of dyspnœa. For delayed resolution I frequently use ichthyol, iodine and belladonna inunction. And if the stomach is retentive prescribe:

Rx.
Pot. Iodide.
Syrup of Ferric Oxide.
Syrup of Sarsap. Comp.
Ess. Pepsin.
M. Signa: Every four hours.

During the stage of convalescence the lighter forms of solid food may be allowed with strychnia, iron, arsenic and quinine. With open air instruct the patient to breath deeply, especially if the case has been of a tedious character.

In conclusion I wish to state that of the above cases, nursed and treated in a systematic and thorough manner my results were gratifying in the extreme, however, of the seventeen cases reported, one was poorly nursed, and owing to conditions it was impossible for me to carry out details, hence of the number I lost one case.

EMPYEMA IN CHILDREN.

By J. R. Paddison, M.D., Oak Ridge.

In a discussion of this subject which is so intimately connected and associated with pneumonia and kindred diseases of the thorax, we find a chain of symptoms and physical signs which are characterized by their close similarity.

Notwithstanding this fact and the knowledge we have of this class of diseases and the past ages to which our literature dates back to "chest diseases," the opinions of medical men of the present are varied and many. Osler in his modern medicine, Vol. III, gives us a very interesting account of pleuritis, and says this term was used previous to the time of Hippocrates.

The now simple operation of thoracentesis was first suggested, as the legend runs, according to Cicero and Pliny, to the time of Pheræus, who was told by his physician that he had an incurable ulcer on the lung. He immediately exposed himself in battle that he might be slain, but the enemy's weapon pierced his side allowing the pus to escape, and he recovered.

Of course this first operation of thoracentesis was not done upon the modern scientific and aseptic plan, but no doubt old Pheræus was satisfied with the result.

The diagnosis of empyema in children is to be made from the history of the case, the clinical picture of the patient, the physical signs of the chest, the symptoms both subjective and objective, and the use of an aspirating needle.

History of case. In my experience where my work is done largely through the country, these cases are well developed when the physician sees them. As our good country friends usually call a physician in after, as they say, "We have done everything we know to do, and thought we had better call in some one who knows more than we do." Thus it is the

country physician sees these little sufferers several days after he or some other physician has discharged the patient who is convalescing from an attack of pneumonia, etc. The child's parents say: "My child seemed to get along nicely for a few days after being discharged, then he began to be languid, seemed to take cold, complained of chilly sensations, and had some fever, etc.

Clinical picture. If case has gone on to a very great extent, the child presents a decided picture. The child's expression is one of uneasiness and discomfort rather than one of intense pain, the skin presents a rather characteristic transparency which sometimes assumes a yellowish tinge, and the superficial views of the chest are seen much more plainly than in health, especially is this true if the child is a blonde.

The child complains of more or less pain, but this is usually not very acute. The respiration is of a short, quick nature accompanied with a peculiar little grunt. The cough is generally quick and short and not attended with much, if any, expectoration.

Dyspnœa is always present and ought be classed as a pressure symptom. In a left side empyema we usually encounter cardiac dyspnœa. The voice is nearly always husky with more or less hoarseness.

As regard to the temperature and pulse, I have found in nearly every case a marked disparagement. The temperature as a rule not running very high, with pulse rate running much higher than in other conditions with similar amount of fever.

The physical signs of chest show bulging in intercostal spaces of affected side if case is well advanced, and if a left side empyema, the heart is displaced to the right. I have seen one case with heart displaced to the right side of sternum.

We find, upon percussion, marked dullness even to absolute flatness, depending of course upon the amount of fluid present.

Upon auscultation we are often unable to detect any of the respiratory murmurs.

With a case presenting the above chain of symptoms and giving a recent history of pneumonia, a positive diagnosis can and should be at once "cinched" by the use of an ordinary pocket aspirating syringe.

By this means we know fluid is or is not present and the nature of same.

Treatment. Your diagnosis having been positively and surely made proceed at once with treatment, which can be well expressed in one word, viz: Thoracotomy. I have tried to relieve (only once) (a) by aspiration; (b) by inserting tube between ribs; (c) by resection of rib; and of the three methods have found the latter far more satisfactory and successful. By the resection of a portion of rib, we insure the best and most effective means of drainage, and this is certainly the most important thing to be accomplished. Make an incision long enough to expose two inches of a rib (the site of operation being decided upon per indications of each individual case) dissect down to the rib, then with blunt dissector separate periosteum from rib, pushing same back out of way, and remove section of rib, usually an inch is sufficient. Now open parietal layer of pleural membrane and allow pus to escape. At this time remove as much pus as possible. Now insert a rubber tube of large caliber and pass a strong suture through external integument and through tube, thus holding tube in place. Apply plenty of gauze and cotton and hold dressings in position with strips of adhesive plaster.

Change dressings as often as is necessary and this is usually necessary daily for a few days. Generally the tube can be removed in ten to fourteen days, gauze tapes now being used for sake of drainage, as incision closes.

Patients treated in this manner recover promptly, and I have seen no bad after-effects, the chest wall being perfectly strong.

As to whether these cases are tubercular, my observations certainly do not support this idea.

After-treatment consists of tonics, fresh air and sunshine, and a wholesome liberal diet.

In conclusion, gentlemen of the North Carolina Medical Society, I beg to say that I am sure my views and ideas do not coincide with those of all present, and I offer no apology for that, but do hope that this short and rather abrupt paper may be worth something toward alleviating the suffering of this class of patients, in whom we are all interested and whom we all love, namely: the children of North Carolina.

SELLING DIPLOMAS TO MEDICAL MEN.

By H. D. Stewart, M.D., Monroe.

Mr. President and Brethren of the Medical Society of the State of North Carolina: The theme which I am to treat is to my mind the most momentous that concerns the medical profession to-day. It means more than any other one subject to medical men who are working for better standards and trying to practice medicine on its merits and on their individual merits.

As much as this thing of cheap medical standards and of unhippocratic ethics concerns both the profession and the laity, it has received but a quite unresultful notice.

There has been a crying need of some bold, fearless expression of truth in regard to the questionable methods and doubtful schemes of some of the leaders of the profession to promote self and self interest.

Strong men possessed of conscience and imbued with the spirit of right have been greatly tempted to declare against cheap, easy licensure and against weak places in medical laws. But hush! harmony must prevail. Lest there be divisions, strife, hard feelings and daggered looks amongst members of the Society, let any threatening evils that may have been created and fostered by any members of the profession grow and grow and send their tap-roots deeper and deeper.

We know these things are wrong in principle and in practice. We know there is an undercurrent of political chicanery that militates against the best interests of the Society and of the profession at large. We have felt the force of tacit understandings.

We have been painfully, sorrowfully moved by the shocks of underground waves of censorship. We have seen wires pulled, we have seen buttons pressed that set to work a great system of political machinery.

Here are some of the things that should have no place in the North Carolina Medical Society: factional fights, bitter animosities, unprofitable controversies, state and national politics, bossism, one man rule, college allegiance and quiz-class allegiance, denominational loyalty, you tickle me and I'll tickle you.

The great mass of the profession should rise up in a body as one man and put these things down and out.

Only merit and honest measures should be allowed to (prevail) stand.

My text in so far as I have been able to make it out is, "Ye shall know the truth and the truth shall make you free." I think it is found somewhere between the lids of the good book.

ANALYSIS AND DEFINITION OF SUBJECT.

In order that we may run along together in a somewhat regular train of thought I must first try to explain the meaning and the limit of my subject, "Selling diplomas to medical men."

By selling is here meant commercialism in its various phases as practiced by members of the medical profession and by those who, under the name of doctor, sell anything the gullibles will buy, offering for sale and actually getting money for college diplomas, which mean nothing but a piece of parchment with a degree conferred.

Commercialism in medical colleges is the prostitution of scientific investigation and scientific learning to the low basis of money making. It is making a trade and a traffic of a profession.

Going into medicine and surgery not to study and to make discoveries that will bless the world, but to get all the money one can get by pretense, by deception and by whatever unethical schemes can be concocted and executed. The word "diplomas" here has a literal meaning and a figurative meaning. In a literal sense it is the parchment or sheepskin or

scroll upon which in solemn, profound, impressive words are printed, "Since John Smith has been adorned and instructed in the greatest gifts of the mind and since he has studied to the fullest extent the art of medicine, he shall have received academic honors and shall have prepared himself in medical things. And we have examined him in the whole field of medicine and he has proved himself abundantly learned. We have constituted, created and declared the said John Smith a doctor of medicine, and by these letters we have constituted him a doctor, and among all men we wish him to be so held and called."

MEDICAL COLLEGES AS COMMERCIAL ENTERPRISES.

I am not running for anything. I speak not against men but against measures and methods. I would not raise my voice in condemnation of any member of the profession, but rather against iniquitous practices that injure the profession at large.

One of the greatest drawbacks to medical education in the United States is medical colleges organized and conducted solely as business enterprises.

It happens this way.

A number of physicians in a city whose ability is none too great and whose practice is not what they would like for it to be, band themselves together, organize a medical college, get a charter, elect themselves professors and they are ready for business. Their business is to get attendants, collect four years fees and tuition, and after the expiration of the time to sell the medical attendants diplomas. Then the graduates sent out from these colleges are deeply impressed that their "professors" are the greatest in America in their specialties. And they *are,* so far as their pupils are concerned. These young doctors go out amongst the people and use their influence for their college and for their professors. And the great commercial scheme works like a charm. There may or may not be a good surgeon amongst the professors. There

may be one learned in the art of medicine. But the chances are in some cases there is neither.

Can he who has not himself learned an art teach another that art?

The next step in the perfecting of the enterprise is to come in touch with the Board of Medical Examiners. It may be that some of the professors or their dear friends are on the Board.

It sometimes happens that the professors and their graduates and pupils work together in a successful effort to elect men to the Board of Examiners that will be very liberal toward men from their school.

Many times so-called graduates are sent out from medical schools unlearned and unprepared. They have been hanging around in the neighborhood of the medical school four years.

They have passed through the college. They have used up four years seeing the sights of a great city. They have become schooled in the ways of whore houses, they have attended the theaters and the parks. They have gone to the baseball games, watched the pretty girls on the public promenades. They have written home for money often. Yes, they have spent four years of time and thousands of dollars.

After they have stayed the required time the professors have lassoed them with diplomas as they ran through the college.

The only requirement is that they stay four years and pay the fees. Then a diploma is pinned on the four-term fellow, and he is sent out to work the quiz class and the State Board of Examiners for license. The diploma says he is versed in literature, taught and learned in medical things. Then they wish him to be called a doctor among all men.

So he sets out with the advantages of a title to humbug the people. He at once becomes a physician, a priest and a lawgiver. He is a general adviser and confidential friend for the community in which he moves. He is so taken and accepted among men and women.

His opportunity for evil is boundless. They (especially the credulous fair sex) believe what he says along all lines. If he is inclined to be a rascal, he has the chance of his life and can be the biggest scoundrel in the country.

He can borrow money, buy on a credit without any prospects of paying, he can move in the best circles and marry the most desirable girl in the entire community. Especially true are these things, if he happens to locate in a community where they badly need compulsory education. There he can be a magnificent scoundrel.

The daughters of millionaires are not the only ones that marry titles and names instead of wedding themselves to first-class husbands.

Why there are cases in which young men have gone to medical schools, seeking only a degree in order that they might marry young ladies desiring to wed doctors.

They will not marry farmer Jones, be he ever so well rounded with brains, character and energy. But give me Dr. Jones and let me be Mrs. Dr. Jones—the wife of a doctor.

You have probably known young men to attend medical schools as a part of a strenuous courtship. They seek only the name. The easiest way to get the degree is their way. The cheapest medical college is their choice. Do they ever look at a medical book after leaving school? No, not they. You have known young men to attend the law school six weeks, pass the examinations and hang out their shingles. What a pity for the plow! Do these men know any literature? Do they know any law? No, and they never will. They can not understand the context nor analyze the great diagrams of the law.

I am speaking for better educational standards in the law as well as in medicine.

I long for the day when every candidate for medicine, law or the ministry shall be required to have a college education. Often a fellow who is not fit for anything else is sent by his

father to a medical college. He worries his father and mother to death at home.

So to get a rest they send him to a far-away medical college. There he spends his daddy's money and takes in the sights of a great city. If the college has diplomas to sell, he dissipates in the city till his four years are out and buys a diploma.

And this fellow is to be literally turned loose upon the people to cure the living, to minister unto the dying.

The temptation to organize one-horse medical colleges for commercial purposes is becoming greater and greater year by year.

You see the entire enterprise pays: The professor gets prestige. How are you, professor, glad to see you.

I once had a friend who was elected professor in a medical college. Great professor he was! The detective bureaus have routed more than one so-called medical college, organized by quacks for advertising purposes.

HORSE SENSE AS A REQUIREMENT IN CANDIDATES FOR LICENSE.

The only power that stands between cheap medical colleges and the people is the Board of Medical Examiners. They are the protectorate.

They are also supposed to stand between damphools, grand rascals and the people. The responsibility of the Board of Examiners can scarcely be estimated.

Men eminent in our profession have time and again with emotional appeals besought our legislators to strengthen our medical laws; but generally in vain. So long as our legislative body is to consist of a set of ignorant lawyers, just so long will our appeals be in vain.

Do you suppose an ignorant politician is going to vote against himself? No. A fellow feeling makes him wondrous kind. No raising of educational standards for him.

Before standing examination for license to practice medicine an applicant should have a diploma from a first-class

medical school of the highest grade and the highest standing in theory and in practice. Before entering the said medical college he should have a fairly good literary education and his literary knowledge should be well tested at the outset.

Many colleges advertise in their catalogues that applicants for entrance are required to pass satisfactory examinations in academic studies before they will be allowed to enter. But with most colleges this is enterprising advertising pure and simple. You can count on your fingers all that are debarred from some colleges on account of ignorance.

In the second place the Board of Examiners ought to protect the profession and the people against fools desiring to practice medicine. There should be a face-to-face test applied by the examiners to the candidates.

Those who have not the horse sense requirement should be advised that they have made a mistake. The old time way of examining was good for the profession and the people.

As a rule the people would be safer in the hands of the ignorant man of brains, energy, honesty and horse sense, than they would be in the hands of the educated damphool.

But if I have to be bad sick, especially when the diagnosis is a little obscure, send me the brains, education, horse sense, energy, honesty and character, and, if I die, the end will be not so disconsolate.

In the third place the profession and the people ought to be protected against the fellow who has no character and no credentials. His character ought to be known to the board beyond peradventure.

If he is a rascal and a scoundrel by birth or association, he ought not to be allowed to pass the guards.

QUIZ-CLASSES AND LICENSURE.

It is a well-known fact that there are many men practicing medicine in North Carolina who have secured license through quiz-classes.

Some of these are from third-rate medical colleges, others are from no medical college at all. Some are narrow escapes

from good medical colleges, others have no alma mater at all. An expert quiz master who is well acquainted with the members of the Board of Examiners, who has their friendly sympathy, who is "on the job," so to speak, can drill and drill a billy goat and almost stuff enough theory into his head to make him pass the State Board. I am sure a parrot could take the quiz and pass.

Men loaded at the quiz stay loaded till they reach the examination room. There they explode. Many of those who pass never reload. They never look at a medical book again. They have license and liberty and the people must suffer.

Some who have taken the quiz are fit to practice medicine. They are good men and should never have been forced to the necessity of taking a quiz.

Their fitness should have been tested face to face before the Board and on their credentials. Many of these quiz-class licentiates cut fees to the drawing water and hewing wood scale. They fight medical organizations, educational standards, and whatever else is proposed for the good of the profession. They cater to dead beats and parasites.

Some time ago I was requested by the American Medical Association to secure some desired information in regard to Union County physicians. I called up one man and asked him to name his alma mater. He said time and again he couldn't hear me. I then said, "What is your age?" He understood.

He finally acknowledged having taken six months at a tail-end medical college, and his second and third years at Dr. Munroe's quiz, where he graduated. He then fired his load at the Board of Examiners, fooled the Board and passed. I presume he has never looked at a book since.

He let one woman die of carcinoma of the uterus, calling it the change of life after an able physician had diagnosed it in its incipiency and advised radical treatment at once. He doesn't know diphtheria from croup nor pneumonia from

grippe or typhoid. He is in the field and there is no way to get rid of him except by death. He will never resign. His resignation has already been asked for. What is the cause of this fellow's presence and practice? The quiz did it.

There are many others like him. Labor cases are one to five dollars. Mileage, two miles 50 cents, six to eight miles $1.50, ten to sixteen miles $2.00. These are some of their fees.

Good men ought not to have to take a quiz. There ought to be a way to test them and pass them, and a way to test and turn down unfit men, quiz or no quiz.

Most of our hindrances to medical organization, decent fees and medical advances in Union County can be traced directly to the quiz-class.

Now a word about another way of beating license and I shall have done.

There are men practicing medicine in North Carolina who could never pass their own State Board. A fellow from North Carolina goes to a State where the examinations are less stringent. Or he may have a relative or a dear friend or a political friend on some Board of Examiners. He tries from State to State till he passes. Then he returns to his native State for reciprocal licensure. This has happened time and again. Do I favor it? No. Do you favor it? You ought not to.

The fellow who seeks license instead of learning seldom continues his studies after he has once been legalized.

To the winds with scientific investigation and scientific discoveries. He seeks money, not medical lore.

The word doctor means, taught, schooled, learned. What a misnomer as carried by some.

Brains and knowledge command a price of their own and must have their reward. But the fellow that has neither brains nor knowledge must be qualified, or at any rate his qualifications ought to have a more crucial test than is customary before he is sent out as a doctor, and a general law giver and adviser of men.

CLINICAL NOTES ON SANATORIUM WORK.

By J. C. Walton, M.D., Richmond, Va.

No explanations or apologies are necessary for presenting a clinical paper illustrating therapeutic progress before an audience that has a national reputation for scientific and practical work. One great advantage of physiotherapy is the absolute impossibility of producing any effects which would interfere with the administration of any other therapeutic procedure, and they should always be accompanied by appropriate hygienic, dietetic and medicinal measures.

HIGH FREQUENCY CURRENTS.

Careful clinical studies, embracing not only my own work, but the opportunity of seeing the work of many eminent clinicians, have thoroughly convinced the writer that for the relief and treatment of hypertension, arterio sclerosis, tuberculosis, obesity, chronic nephritis, neuritis, neurasthenia and other disorders of metabolism, that the high frequency currents come nearer meeting the therapeutic indications than any other methods of treatment.

The high frequency apparatus giving the currents D'Arsonval, Tesla and Oudin, can be excited from a coil or a large static machine of 16 to 20 plates. The majority of clinicians prefer the static machine, as they consider the quality of the current generated much superior to that obtained from the coil; and this is in accordance with my own experience. I use in my work a 20 plate static machine running at full speed, and ordinarily administer a current of 200 to 500 millimeters, for twenty minutes, the patient lying on an auto-condensation couch with a large metal plate over the abdomen. The patient receives millions of oscillations per second, which produce a feeling of well-being, and without pain or discomfort. The blood pressure is reduced from five to twenty millimeters, the temperature is

raised, the secretions are augmented, the system is energized, the functional activity is stimulated, and the proper relation between waste and repair is better maintained. The elimination of effete material takes place more rapidly, the nutrition is improved, and nature is gradually enabled to resume her normal functions. I have record of many rather advanced cases of arterio sclerosis successfully treated by the D'Arsonval current.

High frequency can be relied upon to reduce arterial tension, and also to increase the elimination of the urinary solids, thus opening up a great sphere of usefulness in arterio sclerosis, and in all conditions of nephritis and kidney incompetency. A persistent low specific gravity of the urine is of far more serious import than the presence of albumin and casts. Nothing approaches the results obtained from the D'Arsonval current in the above conditions.

In tuberculosis, by use of the cataphoresis obtained from the high frequency currents (Oudin current), you not only get your drug applied right on the spot, thus coming into direct contact with the diseased tissues with the resulting hyperemia and improved blood supply, but you get in addition to this a most powerful effect on local and general metabolism. The high frequency current increases metabolism, relieves congestion, stimulates the vasomotor system, and promotes nutrition and vital resistance.

The results of high frequency in tuberculosis have been most gratifying and encouraging. Dr. Goss, of Adams, N. Y.; Dr. McParlan and Dr. Craft, of New York City; Dr. Cannon, of Baltimore, Md.; and many other observers report several hundred cases of all stages of the disease with apparent cures of from eighty to ninety-five per cent. I have only treated a few cases, but the results were most encouraging. The formula I use is metallic iodine, gum camphor, 1 oz.; oil of turpentine, 2 oz.; sulphuric acid, C. P., 20 drops. Mix. This mixture penetrates the tissues, and

a gas (carvacrol) is generated that is very destructive to germ life. The peculiar taste is detected by the patient in coughing for hours after the application. The current probably acts also from its chemical effects—that is from the deposit of ozone and nitrous acid in or on the treated surface, and from the ultra violet light produced in or on the tissues by these discharges. Physical results are secured from the expansion and contraction of the cell itself, and in the stimulation of the natural galvanic currents of the body which accompany every chemical reaction and muscular effort. In addition to the above, the open air treatment, nutritious food, hydrotherapy, and the administering of mercury succinimide, one-fifth grain, subcutaneously, every other day.

The Morton wave current induces tissue vibration and contraction, thereby reestablishing normal circulatory drainage. It has a most remarkable tonic effect on local and general metabolism, stimulating the circulation and the secretions, increasing elimination, relieving pain and congestion, and absorbing inflammatory exudates and gouty and rheumatic deposits.

CHRONIC NEPHRITIS.

Mrs. R., age 30 years, New Jersey. Admitted to my sanatorium on April 12, 1909. Remained until April 29, 1909. An edebolhs operation, decapsulation, was performed on both kidneys four years ago. The patient gradually grew worse, and has since then spent most of her time in the Dansville, N. Y., Sanatorium. She was pale, weak and anæmic; eyelids puffy and œdematous; tension 220; occasional attacks of severe chest pains with dyspnœa; obstinate insomnia, headaches, tube casts, albumin, with a large quantity of low specific gravity urine, 1002. Treatment, D'Arsonval currents, auto-condensation daily, followed by the static head breeze and galvanic currents. Positive to forehead and negative to nape of neck and hydrotherapy. Marked improvement in every way. Urine contains much less albumin and the specific gravity increased to 1010. Tension reduced to

155. Sleeping well. Headaches and insomnia relieved and the patient was able to go driving and walking.

She was so much elated over her improvement, that upon returning home she had her physician install an electrical outfit so that she could continue the treatment. All previous attempts to reduce her tension were unavailing.

My experience is that many chronic kidney lesions, including Bright's disease and diabetes, which are due to faulty metabolism, can be restored to health by a judicious combination of hydrotherapy and electricity; with careful supervision of the daily life, especially as regards diet, bathing, clothing, etc. In prostatitis, seminal vesiculitis, enlarged prostate, senile and specific, no treatment has given me such satisfactory results as the Morton wave and high frequency currents, administered with the prostatic electrode in the rectum—the metal electrode for contraction, and the glass vacuum electrode for chemical or bactericidal effects. Nitrous acid and ozone are freely given off and penetrate to a considerable depth into the surrounding tissues.

Of the many cases of senile prostatic hypertrophy successfully treated during the past six years, there has been only one relapse. Mr. H., age 73 years, of Richmond, Va., was treated at the Mecklenburg Sanatorium four years ago, for an enlarged prostate with retention cystitis, and a septic condition, with chills and fevers. Six treatments with the metallic electrode per rectum effected a complete cure, with no return until a month ago. He was then again troubled with frequent micturition. There was very little enlargement of the prostate, but there was a relaxed atonic condition of the parts. All of his symptoms subsided after a few applications of the wave current (metallic electrode per rectum). The treatments produced a marked improvement in his general health. In those cases of enlarged prostate due to gonorrhea, the results have been equally satisfactory. This is not surprising when we know that the prostate and the seminal vesicles are the culture fields and nesting places of the

gonococci, and this is the only direct and tangible way of attacking them in their strongholds.

CHRONIC RHEUMATISM.

Practically all of these cases should recover under a judicious combination of hydrotherapy, electricity and careful attention to the diet and elimination.

ANTHRITIS DEFORMANS.

These cases will recover if treated early and special attention is given to nutrition and elimination. In neurasthenia, neuritis, epilepsy, and the various neuroses, one should study carefully the various etiological factors, correct faulty metabolism, and see that all the eliminating organs are properly performing their functions.

I have records of many interesting cases of the various psychoses and neuroses successfully treated by physical therapeutic agents; but I will not tax your patience by reporting them. In closing a brief allusion to one case will be of interest. Mr. B, age 26 years, was a healthy child except some congenital urethral malformation, for which he was operated upon twenty times in four years, chloroform being the anesthetic used. Referred by Dr. Thomas W. Murrell, of Richmond, Va. Epilepsy (grand mal) came on ten years ago. Severe attacks occurring every two weeks. Under X-Ray treatment by Dr. Murrell the attacks were limited to every three weeks. Under the continued use of the X-Ray and hydrotherapy, with 30 grains daily of sodium bromide, he has been entirely free from any epileptic manifestations for a period of more than six months. There has also been a marked improvement in his mentality and general health. All of the orthodox remedies had been faithfully tried by many of the leading clinicians; and this patient was sent to me as a test case.

Prof. Morton, of New York, claims most excellent results in epilepsy from the use of the X-Ray and the milk diet, or a diet closely approximating it.

TREATMENT OF HOOK-WORM DISEASE.

By Dr. Charles Wardell Stiles,
U. S. Public Health and Marine Hospital Service, Washington, D. C.

At the present time I am receiving a great many requests from various parts of the South, asking for information in regard to treatment of hook-worm disease, and this fact has led me to announce a paper on that subject.

In the first place I invite very special attention to the fact that the underlying principle in the treatment of hook-worm disease is that same underlying principle which is so generally—almost universally—overlooked, but which underlies the treatment of almost every parasitic disease, namely, that you *first treat the parasite and not the patient.* The person who undertakes to treat parasitic diseases by first treating the patient, is putting the cart before the horse. You should first treat the parasite and not the patient. I will refer to this principle several times in this short discussion.

The second point which I would like to stress is this: Although we may have hook-worm disease affecting people in any walk of life, still, it is chiefly among the poorer classes that this disease occurs; it is among people who can not afford to lose a day's wages in order to take the treatment. The day that they undergo treatment they must stay at home. They may have to take the treatment for from one to twelve days. Therefore I urge you, in justice to the pocketbooks of the poor whites of the South, to begin the treatment Saturday evening and to continue it (until) Sunday morning.

This disease happens to be more prevalent where we have a great labor scarcity. The industries of the South have far outgrown the available labor. Now these industries can not afford to lose the time of the two million or more patients we have in the Southern States to-day, for from one to twelve days, in order to permit those people to undergo treat-

ment; therefore, in justice to our southern industries let us give the treatment Saturday afternoon and Sunday morning.

We must now recall that these parasites are in the small intestine, surrounded by a large amount of mucus. We must get this mucus out, if we wish our drug to reach the parasite; therefore, on Saturday evening I am in the habit of giving a dose of epsom salts.

The patient should be warned that on Sunday he must not take a particle of food or drink containing alcohol, fat or oil, including bacon, milk and butter. I know of one almost fatal accident caused by a patient's taking a drink of milk, shortly after he took the thymol. Warn also against patent medicine, for especially among our cotton mill people, and poorer white people, we find a widespread use of patent medicines, and if you do not warn against these, the patient may take some patent medicine containing alcohol, and as a result you may have a funeral on your hands the next day. These warnings should be given to the patient's mother, because the mother of the poor white child of the South is the most important member of the family, and is the only person who can be relied upon to see that the treatment is carried out properly.

Now, after you have cleared the digestive tract (if you fail to do that, the drug reaches the patient, instead of the parasite), the patient is instructed to lie down on his right side on Sunday morning, at six and at eight o'clock. The reason for this precaution is that about fifty per cent of these people have an enlarged stomach; if you give thymol to these people it may get lost in the left portion of the stomach, and it will burn, and the patient will refuse to take the treatment the next week. Instruct him to remain on his right side for at least one half hour after each dose of thymol. Allow him to take a glass of water, if he wishes. One-half of the total dose of thymol is given at six o'clock, the other half at eight, and another dose of epsom salts is given at ten; thus the first dose of thymol is followed in four hours with

epsom salts. No food is to be taken until after this second dose of epsom salts.

A word or two about thymol. You will recall that that is soluble, part for part, in alcohol, fats and oils; that is the reason we warn the patient not to take those substances. We do not want to dissolve the thymol, because too much will be taken up by the patient, and we will get the effect of the drug upon the patient instead of on the parasite.

I find, in going around among the drug stores, that much of the thymol is not good for use. It is old, yellow and run together. The thymol should be of good quality, finely powdered and put up in capsules; personally I prefer a 5 grain capsule.

The doses I use are as follows:

Under five years, a total of 5 grains per Sunday.

From five to ten years, not over fifteen grains, total.

From ten to fifteen years, not over 30 grains, total.

From fifteen to twenty years, not over 45 grains, total.

From twenty to sixty years, not over 60 grains, total.

Over sixty years, I cut down the dose to 30 to 45 grains.

I make the dosage correspond to the *apparent* age of the patient, rather than to his actual age. A hook-worm patient of nineteen may appear to be not over thirteen or fourteen years of age. One of twenty-five may look not over fifteen. Let us cut the dosage to the apparent, rather than the actual age of the patient, and let us cut it down especially when we find severe cardiac symptoms. I do not hesitate to cut down the adult doses to 10 grains instead of 60, if severe cardiac symptoms are present, or if the patient is very weak.

Now follow the thymol with epsom salts at ten o'clock.

Sometimes your patients complain of a burning sensation following the thymol. You will find that most of those cases occur when your patients take their thymol and then get up and walk around, or when they assume some position other than that directed. If you keep your patient on the right

side, so that the drug will drain rapidly through the stomach, you will usually avoid the unpleasant effect of the drug.

This treatment should be repeated as many times as necessary to expel the worms. Probably about fifty per cent of the cases clear up in three Sundays. Within five treatments probably about ninety-five per cent of cases will clear up; for the remaining five per cent it is necessary to treat from six to fifteen weeks.

Now, how do we know when the worms are all expelled? If one is making a mathematically exact record, one must, of course, conduct a microscopic examination every week. But these people, as a rule, can not afford to pay for this, and you can not afford to make it without remuneration. I want, therefore, to suggest to you a simple method I follow among the cotton mill people, with decided success. Instruct your patient to save the stools for Sunday and Monday, and to wash them through cheese cloth. The hook-worms will catch in the cheese cloth, but the fecal matter will be washed through. Then have the patient bring you the cheese cloth every Monday night, we will say. Keep up the treatment as long as you find worms in the cheese cloth, and then, when no worms appear in the cloth, give one more treatment for good measure. This is a practical, though of course not a mathematically exact method of determining when the treatment is finished. It will hold in probably nineteen cases out of twenty.

As for the use of iron, or any other tonic, it is best to keep that away from the patient for at least the first week. Do not, under any circumstances, allow your patient to have iron before the second dose of thymol, on the second Sunday. Every one of these cotton mill people—mountaineers and sand-hillers—knows that you give iron in cases of anæmia. If, on the first week's treatment you give iron, they will say that it was the iron which brought about their improvement. On that account I do not give it until the second week, for it

is important to convince them it is the thymol which is helping them.

You all know how difficult it is, sometimes, to deal with the mountaineers, the cotton mill people and the sand-hillers in any new treatment. Sometimes they will absolutely refuse to have anything to do with it. There is a little method that I use on those occasions—call it a patent medicine method if you will—but I consider it perfectly justifiable. It is this: I look out a family with two or three girls in it who are suffering with menstrual disorders. Now, as a matter of experience, I find fully nineteen out of every twenty cases of amenorrhea among these girls to be nothing but hook-worm disease. I do not hesitate to make the statement that in the Appalachian region and in the sand hills (but not necessarily in the clay lands) hook-worm disease is one of the most common causes of delayed menstruation.

After finding several girls in a family suffering with amenorrhea, I tell the mother I think there is a chance of doing something for her daughters. The mother of the sand-hiller of the South, as a rule, thinks more of her daughter than of her son. More than that, the menstrual function has to her mind something mysterious about it, and she follows that girl's menstruations month after month and you can appeal to the mother on that line and can make her your friend.

With the consent of the mother, I treat for amenorrhea; in about two weeks the girl menstruates, and in a short time I am holding a gynecological clinic in that vicinity, and in a short time, say after two or three girls have been helped, I let the cat out of the bag and tell the people I know that the amenorrhea was due to hook-worm disease. In the meantime I have gained the confidence of the mothers, and I then explain to them that the sons also have the same infection and must be treated.

Referring now to the improvement following treatment: When the treatment is given on Sunday, I usually expect

to find some change in the patient by Wednesday or Thursday. The patient, as a rule, will then notice a change in herself. The mother will notice it on Thursday or Friday, so when you come to the next Sunday's treatment she is willing to take it, unless she has it in her mind that it is the iron that has done the work.

To summarize the treatment, recall, we are dealing with poor people, therefore treat on Sunday. Remember that we have a labor scarcity, and in justice to our industries here, let us treat on Sunday. Clear out the intestinal tract with epsom salts, then follow on Sunday morning with thymol, divided into two doses, one at six and one at eight; or if divided into three doses, give one at six, one at seven and one at eight; give epsom salts at ten. Warn against fats, oils and alcohol on Sunday. Keep iron away for the first week, and whatever else you do, gain the confidence of the mother. You need not bother about the rest of the family. If you have her confidence, that of the rest of the family will come along with it.

Many drugs have been suggested for this disease, but I am rather letting well enough alone. We have had such success with thymol that I am willing to stand by it at least for the present. If you follow it with castor oil, however, you are liable to have a funeral on your hands the next day. I would lay down the general rule, never to use castor oil in any diseases caused by animal parasites.

ADENOIDS.

By J. G. Murphy, M.D., Wilmington.

I am not speaking to the specialists in this line of work, but trying to arouse the interest and consideration of men who practice general medicine. I hope I will be faithful in the discharge of my duty in sounding a note of warning to the general practitioner to look about him in his daily rounds and recognize and treat these dependent helpless victims.

If I succeed in arousing one doctor so that he recognizes and treats one cause of adenoids that might go on to a retarded chest development, disfigured facial appearance, chronic nasal, naso-pharyngeal and Eustachian catarrh and ultimate deafness then my mission is a success.

All new diseases, modes of treatment, operations and remedial agents as they are discovered by our profession are carried at some time to extremes; but in the subject I am bringing to your attention it has been well said that radicalism is less excusable than inactivity.

Having done a general practice myself, I am going to accuse the general practitioner of not having the interest in and knowledge of this subject that it deserves.

What medical man can prove his innocence of giving soothing remedies to infants with the "sniffles?" The most successful way to treat any disease is to remove the cause. Examine these "snifflers" for adenoids. Who can prove his innocence of giving anthelmentics to children restless during sleep. Examine this class for adenoids. Instead of sending that boy or girl away to the sea coast or mountains to cure that persistent cough, examine him for adenoids.

I shall review with emphasis their etiology and symptoms. Adenoid symptoms to my mind is as broad a term as is syphilitic sequelæ. It is a disease of childhood, and is most

common in damp, changeable climates, and in localities in which there are sudden changes of temperature. The most important exciting causes are acute and chronic catarrh of the nose and naso-pharynx. Their first symptoms are often noticed after an attack of measles, scarlet fever or diphtheria. Heredity plays a part in their causation. There seems to be no doubt that they run in families.

I am often called upon to operate on two, three or more members of a family. It is claimed that the disease is more prevalent in the cities, which fact is probably due to the rural children being more robust and to their breathing in less dust laden irritating atmosphere.

Repeated head colds which at first are a cause of adenoids later becomes a result.

The symptoms generally increase in severity as age advances, being always better in summer and worse in winter, until the age of six or seven is reached.

The most striking features in a pronounced type of this affection are the parted lips, deformity of the chest, and disfigurement of the face as a result of the obliteration of the normal lines of expression, which is caused by loss of the labio-nasal fold. The mouth is usually open, or if closed the lower jaw hangs, giving a peculiarly stupid look to the child. There is a broadening of the nose, and inability to blow the nose. On examining the mouth we find a high roof, the arch of the palate is V-shaped instead of oval. The teeth are irregular in consequence of this contraction. There is a characteristic thickness of speech with a nasal twang to the voice. The child is restless, snores, and is troubled with night-terrors. I have cured facial chorea by removing adenoids, and numbers of cases are on record due to this cause.

In the pharynx we usually find hypertrophy of the faucial tonsils also. This occurs in about 70% of the cases. There is a down-flow of mucus-pus from the naso pharynx. There is listless appearance and semi-idiotic facial expression which

is sometimes overlooked entirely by those who are constantly with such children.

There are intermittent and remittent periods of deafness that parents and teachers overlook also, and if observed at all is usually attributed to habits of inattention, for which they are censured unjustly both at home and at school. They do these children a great injustice and they are wise enough to recognize it, too.

Deafness is so common a symptom that it is looked for. To affect the hearing and to cause disease of the ears to develop, the growth need not cover the mouths of the Eustachian tubes.

Adenoids furnish the chief source of the ropy mucus or muco-purulent discharge that in adults drops into the throat below, and gives rise to the disagreeable desire and necessity of hawking and spitting.

Uninterrupted nasal breathing is essential to good health of the ears and to good hearing. This is certainly not possible when there is a growth that mechanically obstructs the entrance of air to the Eustachians, and we have found that smaller growths which are of a lower state of vitality than the faucial tonsils and which are frequently inflamed keeps the Eustachians infected and inflamed, thus lessening their lumen and serving as streams which pour their poisonous deposits into the middle ear.

This irritation lessens the resisting power of the tubes by destroying their epithelium.

The red men we drove out from this favored territory we claim as ours were centuries ahead of us in recognizing the deleterous effects of mouth breathing. We learn that they would bandage the mouths of their children if they found them using that channel for breathing during sleep. They rightly claimed that it kept them from being long winded.

Adenoids interfere with the normal function of the nose, which is to warm, moisten and filter the inspired air. If the post-nasal space is obstructed so that breathing has to be

through the mouth the secretions of the nose, which amount to from sixteen to twenty-four ounces in twenty-four hours accumulate and become pathologically altered, and act as a local irritant to bring about what is commonly called nasal catarrh.

This by direct extension causes pharyngitis, laryngitis and bronchitis. and by pathological changes in the Eustachian tubes interferes with their ventilation and causes deafness, ache, suppurative otitis, mastoiditis, etc.

The breathing through the mouth, which is not the proper channel for it, abstracts from the buccal and pharyngeal mucous membranes their heat and moisture, and thus dries and irritates them. The mouth does not filter the inspired air at all, nor does it warm or moisten it as does the nose. The larynx and bronchi below at the expense of their vitality repay this debt of partial warmth and moisture.

Dench says that pharyngeal adenoids "are responsible for more than half the pathological conditions met with in the middle ear."

Kyle affirms that "ninety per cent of cases of adenoid growths are accompanied with some degree of deafness."

It is claimed by some specialists that half of the number of deaf mutes were not so from birth, but were made deaf by adenoids. Half the deaf mutes, half the pathological ear conditions due to adenoids. Here is food for thought.

DIAGNOSIS.

A physical examination is necessary to a positive diagnosis, inasmuch as obstruction to nasal respiration from other causes may give rise to about the same subjective symptoms.

By gaining the confidence of the child, if the throat is not over-sensitive to the instruments, the adenoids may be seen by post-rhinoscopic examination by means of a suitable tongue depressor, small rhinoscopic mirror, and reflected light. But in many cases this can not be done due to lack of post-nasal

space, to over-sensitiveness of the parts, or when the patient is very young.

There still remains, however, a method of examination that is perfectly easy and absolutely certain. This consists of passing the forefinger of the right hand behind the soft palate into the nasopharynx and feeling the adenoid growth. After doing this the finger tip is usually stained with blood which is additional evidence of the presence of the adenoid. The left hand presses in the buccal muscles between the teeth to act as a mouth gag.

TREATMENT.

Medical measures by internal administration or when locally applied to the lymphatic enlargement have little or no effect on the lessening in size or removal of adenoids even when this mode of treatment is continued over a prolonged period.

All are agreed that when the hypertrophy is considerable, the only treatment that can be recommended is the removal of the mass by means of a surgical operation.

I agree with Savage that the treatment of adenoids is purely surgical. There are some over-conservatives probably under the sound of my voice that are going to let this fact keep them from treating some cases under their care. They will point to certain cases which have ceased to be troublesome after the patient reached a certain age. It is true that nasal respiration does improve as age advances and ear conditions also. This is due to an enlargement of the vault of the pharynx and the partial atrophy of the adenoid tissue. But the adenoid still remains and being tissue of no function and of a lowered state of vitality acts as a starting point for catarrhal conditions which spread to the nasal and Eustachian passages, and ultimately results in chronic deafness.

How shall we operate? In the majority of cases in children it is best to give a general anesthetic, ether being the safest. In adults and those approaching adult life, local

anesthesia in the form of cocaine and suprarenalin is sometimes used; but this is not safe in children.

The Gottstein curette, or some of its modifications, is the preferable instrument.

It is impossible to see the field of operation, so we have to depend entirely on the tactile sense to tell us the progress we are making.

This hidden field is indeed an advantage in obscuring the injuries done to the posterior extremities of the turbinals and the mouths of the Eustachians by the unskilled in their attempts to perform this operation.

Where the faucial tonsils are also enlarged, which is true in about three-fourths of the cases, they should be removed under the same anesthesia.

Adenoid patients do not take an anesthetic well, and I have found it bordering on the impossible to get some of them under the influence of ether.

Ethyl chloride and ether bromide are sometimes given, but their period of anesthesia is too short, for breaking up adhesions of and dissecting out faucial tonsils also.

There is usually considerable bleeding both from the nose and throat after the adenoids are removed; but this seldom goes on to the point of causing any trouble.

CHANCES OF RECURRENCE.

The parent is sure to put this question to you and on it you must give an opinion before he consents for an operation. Broadly speaking the younger the patient the greater are the chances that a second operation may be necessary, and in the very young we should warn the parents that there is a risk of recurrence, but this does not relieve our responsibility of advising an immediate operation if the adenoids are producing serious symptoms.

The chances of recurrence are small in those between four and eight years of age, and in those over eight years they are practically nil. This is always supposing that the operation,

when undertaken, is absolutely thorough and complete, for there is no doubt that many of the so-called recurrences are really cases of incomplete removal.

In very young children the causes which originally led to the hyperplasia may persist and cause the growth to recur.

The results of operative treatment, when it is throughly and completely done, are most gratifying. All the symptoms are relieved and generally in six months' time or less the parent expresses the opinion that the patient is "quite a different child." Both physical and intellectual growth make a start, sleep becomes peaceful and quiet, dullness and apathy disappear, colds become rare, and deafness is a thing of the past.

There is no operation in minor surgery which gives us more flattering results.

THE LATE DR. JAMES A. BURROUGHS.

Resolution passed by the Wake County Medical Society at a called meeting, December 30, 1909:

Resolved, That the Wake County Medical Society in meeting assembled do adjourn, out of respect to the memory of Dr. James A. Burroughs, late President of the State Medical Society of the State of North Carolina; and that this fact be communicated to the Secretary of the State Society, and expressed with sympathy to his bereaved wife.

Dr. G. W. Bell, *President.*

Dr. W. C. Horton, *Secretary.*

CONSTITUTION AND BY-LAWS

OF THE

Medical Society of the State of North Carolina

[Adopted at the Fiftieth Annual Session, Hot Springs, N. C., June 3-5, 1903.]

ARTICLE I.—Title of the Society.

The name and title of this organization shall be "The Medical Society of the State of North Carolina."

ARTICLE II.—Purposes of the Society.

The purpose of this Society shall be to federate and bring into one compact organization the entire medical profession of the State of North Carolina, and to unite with similar organizations in other States to form the American Medical Association; with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—Component Societies.

Component societies shall consist of those district and county medical societies which hold charters from this State Society.

ARTICLE IV.—Composition of the Society.

Section 1. This Society shall consist of Members, Delegates, Guests, Honorary Members, and Honorary Fellows.

Sec. 2. Members.—The members of this Society shall be the members of the component county medical societies.

Sec. 3. Delegates.—Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component county societies in the House of Delegates of this Society.

Sec. 4. Guests.—Any distinguished physician not a resident of this State may become a guest during any annual session upon invitation of the Society, or its Council, and shall be accorded the privilege of participating in all of the scientific work for that session.

SEC. 5. THE HONORARY MEMBERS shall consist of such regular physicians as have won distinction by their contributions to medical science; those elderly physicians who, prior to their retirement from practice, have displayed a proper interest in the welfare of this Society, or who, by their example, have reflected credit and honor upon the profession. They must be nominated by the Council and receive a two-thirds vote of the members of the House of Delegates present at the meeting at which their names are presented for election. They shall be exempt from all dues and fines, and shall be entitled to all the privileges of the Society, except the right to vote and hold office.

SEC. 6. THE HONORARY FELLOWS shall consist of such physicians as have been members of this Society continuously for thirty years, and whose dues have been paid during that time. They shall receive a two-thirds vote of the members of the House of Delegates present at the meeting at which their names are proposed for promotion. They shall be exempt from all dues and fines, and shall be entitled to all the privileges enjoyed by active members in good standing.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Society, and shall consist of (1) delegates elected by the component county societies, and (2) *ex officio* the officers of the Society as defined in this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such council or district societies as will promote the best interests of the profession, such societies can be composed exclusively of members of component county societies.

ARTICLE VII.—SESSIONS AND MEETINGS.

SECTION 1. The Society shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS.

SECTION 1. The officers of this Society shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and ten Councilors.

SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of three years each. All of these officers shall serve until their successors are elected and installed.

SEC. 3. The officers of this Society shall be elected by ballot, a majority of the votes cast being necessary to elect, by the House of

Delegates on the morning of the last day of the Annual Session, but no Delegates shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session and who has not been a member of the Society for the past three years. Any nominee for the office of President shall have been an active member of the Society for five years, including the year of his election, shall have attended two of three meetings immediately preceding his nomination, including the meeting at which he is nominated; and shall be a member in good standing at the time of his nomination.

ARTICLE IX.—The Board of Medical Examiners.

Section 1. The seven members of the "Board of Medical Examiners of the State of North Carolina" shall be elected by ballot by the members of the Society in general meeting for a term of six years, a majority of the votes cast being necessary to a choice. The election shall be held on the second day of the Annual Meeting and the balloting shall continue until the entire number is elected.

Sec. 2. A vacancy occurring from any cause other than expiration of term of office shall be filled by the Board or a quorum thereof.

Sec. 3. The elective members of the State Board of Health and of the State Board of Medical Examiners for Nurses shall be elected by the members of the Society in general meeting on the second day of the session.

ARTICLE X.—Funds and Expenses.

Funds for meeting the expenses of the Society shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society, to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publication. Funds may be appropriated by the House of Delegates to defray the expenses of the annual sessions, for publication, and for such other purposes as will promote the welfare of the Society and profession.

ARTICLE XI.—Referendum.

The general meeting of the Society may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the general meeting, submit any such question to the membership of the Society for a final vote; and if the persons voting shall comprise a majority of all the members of the Society, present and voting, shall determine the question, and be binding upon the House of Delegates.

ARTICLE XII.—The Seal.

The Society shall have a common seal, with power to break, change or renew the same at pleasure.

ARTICLE XIII.—Amendments.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that annual session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

By-Laws.

CHAPTER I.—Membership.

Section 1. All members of the component county societies shall be privileged to attend all meetings and take part in all of the proceedings of the annual sessions, and shall be eligible to any office within the gift of the Society.

Sec. 2. The name of a physician upon the properly certified roster of members or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the annual session in the respective bodies of this society: *Provided*, that licentiates of the State Board of Medical Examiners may, if the House of Delegates so elects, at the meeting of the Society at which they receive license, be entitled to register upon payment of the annual dues for that year, and be accorded all the privileges of other members for that year, the Secretary of the Society entering their names and so certifying to the Secretary of the county society where the said licentiates reside, but said licentiates desiring to continue membership in this society must affiliate with their local county society.

Sec. 3. No person who is under sentence of suspension or expulsion from any component society of this Society or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Society, nor shall he be permitted to take any part in any of its proceedings until such time as he has been relieved of such disability.

Sec. 4. Each member in attendance at the annual session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

CHAPTER II.—Annual and Special Sessions of the Society.

Section 1. The Society shall hold an annual session at such time and place as has been fixed at the preceding annual session.

Sec. 2. Special sessions of either the Society or House of Delegates shall be called by the President at his discretion, or upon petition of twenty delegates.

CHAPTER III.—General Meetings.

Section 1. The general meetings shall include all registered members, delegates, and guests, who shall have equal right to participate in the proceedings and discussions; and, except guests and honorary members, to vote on pending questions. Each general meeting shall be presided over by the President, or in his absence or disability, or by his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations, and the entire time of the session, so far as may be, shall be devoted to papers and discussions relating to scientific medicine.

Sec. 2. The general meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved of by the House of Delegates.

Sec. 3. Except by special vote, the order of exercises, papers and discussions, as set forth in the official program shall be followed from day to day until it has been completed.

Sec. 4. No address or paper before the Society, except those of the President, Orator and Essayist, shall occupy more than twenty minutes, in its delivery; and no member shall speak longer than five minutes nor more than once on any subject.

Sec. 5. All papers read before the Society shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done it shall not be published.

CHAPTER IV.—House of Delegates.

Section 1. The House of Delegates shall meet annually at the time and place of the annual session of the Society, and shall so fix hours of meeting as not to conflict with the first general meeting of the Society, or with the meeting held for the address of the President and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But if the business interests of the Society and profession require, it may meet in advance, or remain in session after the final adjournment of the general meeting.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this Society which has made its annual report and paid its assessment as provided in this Constitution and By-laws, shall be entitled to one delegate.

SEC. 3. A majority of the registered delegates shall constitute a quorum, and all of the meetings of the House of Delegates shall be open to members of the Society.

SEC. 4. It shall, through its officers, Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly study and strive to make each annual session a stepping-stone to future ones of higher interest.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

SEC. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under Medical Society influence.

SEC. 7. It shall encourage post-graduate work in medical centers, as well as home study and research, and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. (With these ends in view, five years after the adoption of these By-laws, except by unanimous consent of the Committee on Scientific Work, no voluntary paper shall be placed upon the annual program, or be heard in the Association, which has not first been read in the county society of which the author is a member.)

SEC. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-laws of that body, in such a manner that not more than one-half of the delegates shall be elected in any one year.

SEC. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-laws.

SEC. 10. In sparsely settled sections, it shall have authority to organize the physicians of two or more counties into societies, to be designated by hyphenating the names of two or more counties, so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

SEC. 11. It may divide the counties of the State into ten councilor districts, and, when the best interest of the Society and profession will be promoted thereby, organize in each a district medical society, to

meet midway between the annual sessions of this Society, and members of the chartered county societies, and none others, shall be members in such district societies. (When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Society, and the presidents of the county societies of the district shall be the vice-presidents of such district societies.)

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates, and such committees may report to the House of Delegates in person, and may participate in the debate thereon.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

Sec. 14. It shall present a summary of its proceedings to the last general meeting of each annual session, and shall publish the same in the transactions.

CHAPTER V.—Election of Officers.

Section 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect: *Provided*, that when only one name is to be balloted for, *the Society* may suspend the rules and declare the same elected by consent.

Sec. 2. The House of Delegates, on the first day of the annual sessions, shall select a Committee on Nominations, consisting of ten delegates, no two of whom shall be from the same council or district. It shall be the duty of this committee to consult with the members of the Society, and to hold one or more meetings, at which the best interests of the Society and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the name of one member for the office of President, and one member for each of the other offices to be filled at that annual session.

Sec. 3. The report of the Nominating Committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes *on the morning of the last day* of the general session.

Sec. 4. Nothing in this Article shall be construed to prevent additional nominations being made by members of the House of Delegates.

Sec. 5. Any person known to have solicited votes for or sought any office within the gift of this Society, shall be ineligible for any office for two years.

CHAPTER VI.—Duties of Officers.

Section 1. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall

perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the councilors in building up the county societies, and in making their work more practical and useful.

SEC. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

SEC. 3. The Treasurer shall give bond for the trust reposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Society, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Society, and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Society. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. He shall charge upon his books the assessments againt each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him.

SEC. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the Society, and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the Society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates at the annual sessions. He shall keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society. In so far as it is in his power, he shall use the printed matter, correspondence and influence of his office to aid the councilors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as Chairman of the Committees on Scientific Work and on publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of

time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—Councilor Districts.

Section 1. To facilitate the more perfect organization of the medical profession, the State of North Carolina is hereby divided by counties into ten councilor districts, as follows:

First District.—Currituck, Camden, Pasquotank, Perquimans, Gates, Chowan, Washington, Tyrrell, Dare and Hyde.

Second District.—Hertford, Martin, Pitt, Bertie, Beaufort, Lenoir, Jones, Craven, Pamlico and Carteret.

Third District.—New Hanover, Pender, Onslow, Duplin, Bladen, Sampson, Columbus and Brunswick.

Fourth District.—Northampton, Halifax, Nash, Edgecombe, Johnston, Wilson, Wayne and Greene.

Fifth District.—Cumberland, Robeson, Scotland, Richmond, Montgomery, Moore, Harnett and Chatham.

Sixth District.—Wake, Franklin, Warren, Vance, Granville, Person, Caswell, Alamance, Orange and Durham.

Seventh District.—Anson, Union, Stanly, Mecklenburg, Cabarrus, Lincoln, Gaston, Cleveland and Rutherford.

Eighth District.—Rockingham, Guilford, Randolph, Forsyth, Stokes, Surry, Yadkin, Alleghany, Wilkes and Ashe.

Ninth District.—Davidson, Davie, Rowan, Iredell, Alexander, Catawba, Caldwell, Watauga, Mitchell and Burke.

Tenth District.—Buncombe, Yancey, McDowell, Madison, Polk, Henderson, Haywood, Transylvania, Jackson, Swain, Macon, Graham, Clay and Cherokee.

CHAPTER VIII.—Council.

Section 1. The Council shall hold daily meetings during the annual session of the Association and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the annual session of the Association for reorganization and for the outlining of work for the ensuing year. At this meeting it shall elect a Chairman and Secretary, and it shall keep a permanent record of its proceedings. It shall, through its Chairman, make an annual report to the House of Delegates at such time as may be provided.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each annual

session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the annual session of the Society.

SEC. 3. Collectively the Council shall be the Board of Censors of the Society. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Society. All questions of an ethical nature brought before the House of Delegates or the general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society, upon which an appeal is taken from the decision of an individual councilor. Its decision in all such cases shall be final.

SEC. 4. The Council shall have the right to communicate the views of the profession and of the Society in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the Chairman and Secretary of the Council, as such.

CHAPTER IX.—COMMITTEES.

SECTION 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Publication.

A Committee on Nominations.

A Committee on Finance.

A Committee on Obituaries.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be a member and Chairman, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates or of the Society, or to the provisions of the Constitution and By-laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the Society as nearly as practicable.

SEC. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Society in securing and enforcing legislation in the interest of public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the

best results for the whole people, and shall utilize every organized influence of the profession to promote the general influence in local, State and national affairs and elections. Its work shall be done with the dignity becoming a great profession, and with that wisdom which will make effective its power and influence. It shall have authority to be heard before the entire Society upon questions of great concern at such time as may be arranged during the annual session.

Sec. 4. The Committee on Publication shall consist of three members, of which the Secretary shall be one and Chairman, and shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the Society. It shall be empowered to curtail or abstract papers and discussions, and any paper referred to it which may not be suitable for publication in the transactions may be returned to the author. The committee shall have authority to arrange for the publication and distribution of the transactions after receiving competitive bids, and shall use diligence in getting them into the hands of the members. All papers read before the Society shall be the property of the Society.

Sec. 5. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of chapter 5, section 2, of these By-laws. They shall also nominate an Orator and Essayist, a Leader of Debate, a Committee on Scientific Work, a Committee on Public Policy and Legislation, a Committee on Publication, a Committee on Obituaries, a Committee on Finance, one member of the Committee of Arrangements, delegates to the American Medical Association, the Virginia Medical Society, the South Carolina Medical Association, and to such other bodies as the Society may determine. They shall also each third year nominate a board of ten councilors.

Sec. 6. The Committee on Finance, to consist of three members, shall examine the accounts of the Treasurer and report to the Society, making suggestions as to the amount of assessments for the coming year, the remuneration of the Secretary and the Treasurer, and such other suggestions concerning the finances of the Society as they may think proper. The Committee on Obituaries to consist of three members, shall report to the general meeting of the Society the names of all members dying during the past year, with other data appropriate for memorial publication.

Sec. 7. The Committee of Arrangements shall consist of one member elected by the House of Delegates each year, and two members elected by the county society in the territory in which the annual session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting places of the Society and of the House of Delegates, the Board of Medical Examiners, and of their respective committees, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER X.—Of the Sections and Voluntary Communications.

Section 1. The newly-installed President shall, at the last session of each meeting, appoint a member to serve as Chairman of each of the following sections, to-wit: Anatomy and Surgery, Materia Medica and Therapeutics, Practice of Medicine, Physiology and Chemistry, Obstetrics, Gynecology, Medical Jurisprudence and State Medicine, Pathology and Microscopy, and Railway Surgery.

Sec. 2. At any time after the meeting the Chairman of each section may appoint three such members as he may select as his assistants to work up such items as he may designate, confining himself to the general advancement in his section.

Sec. 3. The Chairmen of sections shall send in to the Secretary, not later than thirty days previous to each meeting of the Society, the titles of papers to be presented by themselves and their assistants, to be used by the Committee on Scientific Work in making a program for the meeting.

Sec. 4. No paper shall be read before the Society unless the author be present, unless his absence be due to some unavoidable circumstance. A paper presented by proxy may be referred to the Committee on Publication.

Sec. 5. No paper shall be referred to the Committee on Publication until it has been placed in the hands of the Secretary; and the Secretary shall not return any paper accepted by the Society without the consent of the Society, and then he shall take a receipt for the same.

Sec. 6. No paper shall be received by or read before this Society that has been presented to any other society, excepting only a component society of this Society, or that has been offered for publication in any journal; and in the case of any paper accepted the author is supposed to have invested with the Society all rights to its ownership.

Sec. 7. No paper shall be published in the transactions of this Society unless approved by the Committee on Publication; and any paper rejected by said committee shall be returned to the author through the Secretary of the Society.

Sec. 8. It is to be understood that the Society is not to be considered as endorsing all the views and opinions advanced by the authors of papers published in the transactions of the Society.

CHAPTER XI.—Assessments and Expenditures.

Section 1. An assessment of two dollars per capita on the membership of the component societies is hereby made the annual dues of this Society, which amount shall be collected by the secretary of each county society, from each of its members, on or before the first day of March, and forwarded to the Treasurer of the State Society before the first day of April in each year. The secretary of each county society shall forward a statement of its assessment, together with its roster of all officers and members, list of delegates and list of nonaffiliated physicians

of the county, to the Secretary of this Society on or before the first day of April in each year.

Sec. 2. Any county society which fails to pay its assessment, or make the reports required, on or before the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the State Society, or of the House of Delegates, or receive the volume of transactions, until such requirements have been met.

Sec. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates on a call of the ayes and noes.

CHAPTER XII.—Rules of Conduct.

The principles set forth in the Declaration of Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XIII.—Rules of Order.

The deliberations of this Society shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XIV.—County Societies.

Section 1. All county societies now in affiliation with the State Society, or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Society.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates, and shall be signed by the President and Secretary of this Society. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the district, if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualification of its own members, but, as such societies are the only portals to this Society

and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree to practice nonsectarian medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

SEC. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council, and to the House of Delegates.

SEC. 7. In hearing appeals the Council may admit oral or written evidence, as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

SEC. 8. When a member in good standing in a component society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferments shall be unstintingly given to such members.

SEC. 12. At some meeting in advance of the annual session of this Society prior to the first day of April, each county society shall elect a delegate or delegates with alternates, to represent it in the House of Delegates of this Society in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates with alternates to the Secretary of this Society at least ten days before the annual sessions.

SEC. 13. The secretary of each county society shall keep a roster of its members, and a list of the nonaffiliated registered physicians of the county, in which shall be shown the full name, address, college, and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an

official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Society before the first day of April, in each year, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster, the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

CHAPTER XV.—Order of Business.

Section 1. General meetings.

The President, or, in his absence, one of the Vice-Presidents in the order of their rank, shall call the Society to order, or in the absence of all these officers, a presiding officer shall be chosen by a majority of the members present.

Address of Welcome. Response.

Any business requiring early attention may be introduced by permission and without discussion referred to the Council, the House of Delegates, or the appropriate committee.

The President's Address.

Reports of Committees.

Reports from the House of Delegates.

Reports from the Council.

Written communications upon medical subjects may be read and discussed. This shall include reports from sections as arranged each year by the program.

The Annual Oration.

The Annual Essay.

The Annual Debate.

Oral Communications and Clinical Reports read and discussed.

Final Reports from the Council.

Final Reports from the House of Delegates.

Final Reports from Committees.

Report to the General Meeting from the House of Delegates appointing the time and place of next session.

Report from the House of Delegates of the Election of Officers and Committees.

Appointment of Chairmen of Sections by President.

Adjournment.

Sec. 2. The House of Delegates.

The President, or, in his absence, one of the Vice-Presidents in the order of their rank, shall call the Society to order, or in the absence of all these officers a presiding officer shall be chosen by a majority of the members present.

Roll-call.
The President's Message.
Report of Committee on Credentials.
Reports of Committees.
Reports of Officers.
Reports of the Council.
Communications from the General Meeting of the Society.
Reports from the County Societies.
Appointment of Committee on Nominations.
New Business.
General Discussion of Measures for the Advancement of the Profession.
Reports of Committees.
Election of Officers and Committees.
Selection of Place and Time of Next Meeting.
Unfinished Business.
Adjournment.

(While there may at times appropriately be a variation from the details of the above outline of business procedure, it is the intention of these By-laws to so arrange that the work other than the purely scientific part of the Society's proceedings be done in the Council and House of Delegates, and the general meetings of the Society be devoted exclusively to scientific work.)

CHAPTER XVI.—AMENDMENTS.

These By-laws may be amended at any annual session by a majority vote of all the delegates present at that session, after the amendment has lain upon the table for one day.

(Extract from the proceedings of the American Medical Association at the annual session in New Orleans, May, 1903.)

Report of the Committee on Medical Ethics.

Dr. E. Eliot Harris, New York, read the following report:

To the President and Members of the House of Delegates of the American Medical Association:

Your enlarged Committee on Medical Ethics, consisting of the Special Committee and one delegate from each State, have unanimously adopted the following report, entitled the "Principles of Medical Ethics of the American Medical Association," which is herewith submitted.

The following report of the Special Committee shall be printed as an explanatory preface to the Principles of Medical Ethics of the American Medical Association:

Gentlemen:—Your committee has given extended and careful thought to the proposed revision of the Code of Medical Ethics referred to it for consideration. As you will note on reference to the caption of the report the word "Code" has been eliminated, and the expression "Principles of Medical Ethics of the American Medical Association" adopted as adequately descriptive. In reference to this change, it is proper to say that such action on its part is based on the idea that the American Medical Association may be conceived to occupy some such relation to the constituent State associations as the United States, through its Constitution, holds to the several States. The committee, for this reason, regards it as wiser to formulate the principles of medical ethics without definite reference to "Code" or penalties, thus leaving the respective States to form such Code, and establish such rules as they may regard to be fitting and proper, for regulating the professional conduct of their members, provided, of course, that in doing so there shall be no infringement on the established ethical principles of this Association. The committee regard as wise and well intended to facilitate the business of the parent organization, and promote its harmony, this course which leaves to the State Association large discretionary powers concerning membership and other admittedly State affairs. Your committee has retained, to a large extent, the phraseology of the existing Code, while aiming at condensation of expression and a better understanding of some of its statements. The report of the committee has been reached unanimously, without dissension or distrust on the part of its members, each aiming to formulate a result based on principle alone, and without regard to any past or present disagreements or misunderstandings whatsoever; such being the case, the committee invites your candid and unprejudiced attention to the results of its labor, feeling that at least some good has been accomplished.

Respectfully submitted,

E. Eliot Harris, *Chairman.*
William H. Welch.
T. J. Happel.
Joseph D. Bryant.

The report of the committee was unanimously adopted.

CHAPTER XII.—Rules of Conduct.

"The principles set forth in the Declaration of Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public."—Constitution and By-laws Medical Society of the State of North Carolina, adopted at Hot Springs, N. C., June 2, 1903.

Principles of Medical Ethics.

(Adopted at the annual session in New Orleans, May, 1903.)

The American Medical Association promulgates as a suggestive and advisory document, the following:

CHAPTER I.—THE DUTIES OF PHYSICIANS TO THEIR PATIENTS.

SECTION 1. Physicians should not only be ever ready to obey the calls of the sick and the injured, but should be mindful of the high character of their mission and of the responsibilities they must incur in the discharge of momentous duties. In their ministrations they should never forget that the comfort, the health, and the lives of those entrusted to their care, depend on skill, attention and fidelity. In deportment they should unite tenderness, cheerfulness and firmness, and thus inspire all sufferers with gratitude, respect and confidence. These observances are the more sacred because, generally, the only tribunal to adjudge penalties for unkindness, carelessness or neglect is their own conscience.

SEC. 2. Every patient committed to the charge of a physician should be treated with attention and humanity, and reasonable indulgence should be granted to the caprices of the sick. Secrecy and delicacy should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted, in their professional visits, should be guarded with the most scrupulous fidelity and honor.

SEC. 3. The obligation of secrecy extends beyond the period of professional services; none of the privacies of individual or domestic life, no infirmity of disposition, or flaw of character observed during medical attendance should ever be divulged by physicians, except when imperatively required by the laws of the State. The force of the obligation of secrecy is so great that physicians have been protected in its observance by courts of justice.

SEC. 4. Frequent visits to the sick are often requisite, since they enable the physician to arrive at a more perfect knowledge of the disease, and to meet promptly every change which may occur. Unnecessary visits are to be avoided, as they give undue anxiety to the patient; but to secure the patient against irritating suspense and disappointment the regular and periodical visits of the physician should be made as nearly as possible at the hour when they may be reasonably expected by the patient.

SEC. 5. Ordinarily, the physician should not be forward to make gloomy prognostications, but should not fail, on proper occasions, to give timely notice of dangerous manifestations to the friends of the patient, and even to the patient, if absolutely necessary. This notice, however, is at times so peculiarly alarming when given by the physician that its deliverance may often be preferably assigned to another person of good judgment.

Sec. 6. The physician should be a minister of hope and comfort to the sick, since life may be lengthened or shortened not only by the acts but by the words or manner of the physician, whose solemn duty is to avoid all utterances and actions having a tendency to discourage and depress the patient.

Sec. 7. The medical attendant ought not to abandon a patient because deemed incurable, for continued attention may be highly useful to the sufferer and comforting to the relatives, even in the last period of the fatal malady, by alleviating pain and by soothing mental anguish.

Sec. 8. The opportunity which a physician has of promoting and strengthening the good resolutions of patients suffering under the consequences of evil conduct ought never to be neglected. Good counsels, or even remonstrances, will give satisfaction, not offense, if they be tactfully proffered and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

CHAPTER II.—The Duties of Physicians to Each Other and to the Profession at Large.

ARTICLE I.—DUTIES FOR THE SUPPORT OF PROFESSIONAL CHARACTER.

Section 1. Every one, on entering the profession, and thereby becoming entitled to full professional fellowship, incurs an obligation to uphold its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. It is inconsistent with the principles of medical science and it is incompatible with honorable standing in the profession for physicians to designate their practice as based on an exclusive dogma, or a sectarian system of medicine.

Sec. 2. The physician should observe strictly such laws as are instituted for the government of the members of the profession; should honor the fraternity as a body; should endeavor to promote the science and art of medicine, and should entertain a due respect for those seniors who, by their labors, have contributed to its advancement.

Sec. 3. Every physician should identify himself with the organized body of his profession as represented in the community in which he resides. The organization of local or county medical societies where they do not exist, should be effected, so far as practicable. Such county societies, constituting as they do, the chief element of strength in the organization of the profession, should have the active support of their members, and should be made instruments for the cultivation of fellowship, for the exchange of professional experience, for the advancement of medical knowledge, for the maintenance of ethical standards, and for the promotion in general of the interests of the profession and the welfare of the public.

Sec. 4. All county medical societies thus organized ought to place themselves in affiliation with their respective State associations, and these, in turn, with the American Medical Association.

SEC. 5. There is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical; and to attain such eminence is a duty every physician owes alike to the profession and to patients. It is due to the patients, as without it their respect and confidence can not be commanded, and to the profession because no scientific attainments can compensate for the want of correct moral principles.

SEC. 6. It is incumbent on physicians to be temperate in all things, for the practice of medicine requires the unremitting exercise of a clear and vigorous understanding; and in emergencies—for which no physician should be unprepared—a steady hand, an acute eye, and an unclouded mind are essential to the welfare and even to the life of a human being.

SEC. 7. It is incompatible with honorable standing in the profession to resort to public advertisements or private cards, inviting the attention of persons affected with particular diseases; to promise radical cures; to publish cases of operations in the daily prints, or to suffer such publications to be made; to invite laymen (other than relatives who may desire to be at hand) to be present at operations; to boast of cures and remedies; to adduce certificates of skill and success, or to employ any of the other methods of charlatans.

SEC. 8. It is equally derogatory to professional character for physicians to hold patients for any surgical instruments or medicines; to accept rebates on prescriptions or surgical appliances; to assist unqualified persons to evade the legal restrictions governing the practice of medicine; or to dispense, or promote the use of secret medicines, for if such nostrums are of real efficacy, any concealment regarding them is inconsistent with benevolence and professional liberality, and if mystery alone give them public notoriety, such craft implies either disgraceful ignorance or fraudulent avarice. It is highly reprehensible for physicians to give certificates attesting the efficacy of secret medicines or other substances used therapeutically.

ARTICLE II.—PROFESSIONAL SERVICES OF PHYSICIANS TO EACH OTHER.

SECTION 1. Physicians should not, as a general rule, undertake the treatment of themselves, nor of members of their family. In such circumstances, they are peculiarly dependent on each other; therefore, kind offices and professional aid should always be cheerfully and gratuitously afforded. These visits ought not, however, to be obtrusively made, as they may give rise to embarrassment or interefere with that free choice on which such confidence depends.

SEC. 2. All practicing physicians and their immediate family dependents are entitled to the gratuitous services of any one or more of the physicians residing near them.

SEC. 3. When a physician is summoned from a distance to the bedside of a colleague in easy financial circumstances, a compensation,

proportionate to traveling expenses and to the pecuniary loss entailed by absence from the accustomed field of professional labor, should be made by the patient or relatives.

SEC. 4. When more than one physician is attending another, one of the number should take charge of the case, otherwise the concert of thought and action so essential to wise treatment can not be assured.

SEC. 5. The affairs of life, the pursuit of health and the various accidents and contingencies to which a physician is peculiarly exposed, sometimes require the temporary withdrawal of this physician from daily professional labor, and the appointment of a colleague to act for a specified time. The colleague's compliance is an act of courtesy which should always be performed with the utmost consideration for the interest and character of the family physician.

ARTICLE III.—THE DUTIES OF PHYSICIANS IN REGARD TO CONSULTATIONS.

SECTION 1. The broadest dictates of humanity should be obeyed by physicians whenever and wherever their services are needed to meet the emergencies of disease or accident.

SEC. 2. Consultations should be promoted in difficult cases, as they contribute to confidence and more enlarged views of practice.

SEC. 3. The utmost punctuality should be observed in the visits of physicians when they are to hold consultations, and this is generally practicable, for society has been so considerate as to allow the plea of a professional engagement to take precedence over all others.

SEC. 4. As professional engagements may sometimes cause delay in attendance, the physician who first arrives should wait for a reasonable time, after which the consultation should be considered as postponed to a new appointment.

SEC. 5. In consultations no insincerity, rivalry, or envy should be indulged in; candor, probity, and all due respect should be observed toward the physician in charge of the case.

SEC. 6. No statement or discussion of the case should take place before the patient or friends, except in the presence of all the physicians attending, or by their common consent; and no opinions or prognostications should be delivered which were not the result of previous deliberation and concurrence.

SEC. 7. No decision should restrain the attending physician from making such consequent variations in the mode of treatment as any unexpected change in the character of the case may demand. But at the next consultation reasons for the variations should be stated. The same privilege, with its obligation, belongs to the consultant when sent for in an emergency during the absence of the family physician.

SEC. 8. The attending physician at any time may prescribe for the patient; not so the consultant, when alone, except in a case of emergency or when called from a considerable distance. In the first instance the consultant should do what is needed, and in the second, should do no

more than make an examination of the patient, and leave a written opinion, under seal, to be delivered to the attending physician.

SEC. 9. All discussions in consultation should be held as confidential. Neither by words nor by manner should any of the participants in a consultation assert, or intimate, that any part of the treatment pursued did not receive his assent.

SEC. 10. It may happen that two physicians can not agree in their views of the nature of a case and of the treatment to be pursued. In the event of such disagreement a third physician should, if practicable, be called in. None but the rarest and most exceptional circumstances would justify the consultant in taking charge of the case. He should not do so merely on the solicitation of the patient or friends.

SEC. 11. A physician who is called in consultation should observe the most honorable and scrupulous regard for the character and standing of the attending physician, whose conduct of the case should be justified, as far as can be, consistently with the conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in the attending physician.

ARTICLE IV.—DUTIES OF PHYSICIANS IN CASES OF INTERFERENCE.

SECTION 1. Medicine being a liberal profession, those admitted to its ranks should found their expectations of practice especially on the character and extent of their medical education.

SEC. 2. The physician, in his intercourse with a patient under the care of another physician, should observe the strictest caution and reserve; should give no disingenuous hints relative to the nature and treatment of the patient's disorder, nor should the course of conduct of the physician, directly or indirectly, tend to diminish the trust reposed in the attending physician.

SEC. 3. The same circumspection should be observed when, from motives of business or friendship, a physician is prompted to visit a person who is under the direction of another physician. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

SEC. 4. A physician ought not to take charge of, or prescribe for a patient who has recently been under the care of another physician, in the same illness, except in case of a sudden emergency, or in consultation with the physician previously in attendance, or when that physician has relinquished the case or has been dismissed in due form.

SEC. 5. The physician acting in conformity with the preceding section should not make damaging insinuations regarding the practice previously adopted, and, indeed, should justify it if consistent with truth and probity; for it often happens that patients become dissatisfied when they are not immediately relieved, and, as many diseases are naturally

protracted, the seeming want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

SEC. 6. When a physician is called to an urgent case, because the family attendant is not at hand, unless assistance in consultation is desired, the former should resign the care of the patient immediately on the arrival of the family physician.

SEC. 7. It often happens, in cases of sudden illness, and of accidents and injuries, owing to the alarm and anxiety of friends, that several physicians are simultaneously summoned. Under these circumstances, courtesy should assign the patient to the first who arrives, and who, if necessary, may invoke the aid of some of those present. In such a case, however, the acting physician should request that the family physician be called, and should withdraw unless requested to continue in attendance.

SEC. 8. Whenever a physician is called to the patient of another physician during the enforced absence of that physician, the case should be relinquished on the return of the latter.

SEC. 9. A physician while visiting a sick person in the country, may be asked to see another physician's patient because of a sudden aggravation of the disease. On such an occasion the immediate needs of the patient should be attended to and the case relinquished on the arrival of the attending physician.

SEC. 10. When a physician who has been engaged to attend an obstetric case is absent, and another is sent for, delivery being accomplished during the vicarious attendance, the acting physician is entitled to the professional fee, but must resign the patient on the arrival of the physician first engaged.

ARTICLE V.—DIFFERENCES BETWEEN PHYSICIANS.

SECTION 1. Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such unfortunate cases occur and can not be immediately adjusted, they should be referred to the arbitration of a sufficient number of impartial physicians.

SEC. 2. A peculiar reserve must be maintained by physicians toward the public in regard to some professional questions, and as there exist many points in medical ethics and etiquette through which the feelings of physicians may be painfully assailed in their intercourse, and which can not be understood or appreciated by general society, neither the subject-matter of their differences nor the adjudication of the arbitrators should be made public.

ARTICLE VI.—COMPENSATION.

SECTION 1. By the members of no profession are eleemosynary services more liberally dispensed than by the medical, but justice requires that some limits should be placed to their performance. Poverty, mutual

professional obligations, and certain of the public duties named in sections 1 and 2 of chapter III, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by the rich, or by societies for mutual benefit, for life insurance, or for analogous purposes, nor any profession or occupation can be admitted to possess such privilege.

SEC. 2. It can not be justly expected of physicians to furnish certificates of inability to serve on juries, or to perform militia duty; to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without due compensation. But to persons in indigent circumstances such services should always be cheerfully and freely accorded.

SEC. 3. Some general rules should be adopted by the physicians in every town or district relative to the minimum pecuniary acknowledgment from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

SEC. 4. It is derogatory to professional character for physicians to pay or offer to pay commissions to any person whatsoever, who may recommend to them patients requiring general or special treatment or surgical operations. It is equally derogatory to professional character for physicians to solicit or to receive such commissions.

CHAPTER III.—THE DUTIES OF THE PROFESSION TO THE PUBLIC.

SECTION 1. As good citizens, it is the duty of physicians to be very vigilant for the welfare of the community, and to bear their part in sustaining its laws, institutions and burdens; especially should they be ready to cooperate with the proper authorities in the administration and the observance of sanitary laws and regulations, and they should also be ever ready to give counsel to the public in relation to subjects, especially appertaining to their profession, as on questions of sanitary police, public hygiene and legal medicine.

SEC. 2. It is the province of physicians to enlighten the public in regard to quarantine regulations; to the location, arrangement and dietaries of hospitals, asylums, schools, prisons and similar institutions; in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger and to continue their labors for the alleviation of the suffering people, even at the risk of their own lives.

SEC. 3. Physicians, when called on by legally constituted authorities, should always be ready to enlighten inquests and courts of justice on subjects strictly medical, such as involve questions relating to sanity, legitimacy, murder by poison, or other violent means, and various other subjects embraced in the science of medical jurisprudence. It is but just, however, for them to expect due compensation for their services.

SEC. 4. It is the duty of physicians, who are frequent witnesses of the great wrongs committed by charlatans, and of the injury to health and even destruction of life caused by the use of their treatment, to enlighten the public on these subjects, and to make known the injuries sustained by the unwary from the devices and pretensions of artful impostors.

SEC. 5. It is the duty of physicians to recognize, and by legitimate patronage to promote, the profession of pharmacy, on the skill and proficiency of which depends the reliability of remedies, but any pharmacist who, although educated in his own profession, is not a qualified physician, and who assumes to prescribe for the sick, ought not to receive such countenance and support. Any druggist or pharmacist who dispenses deteriorated or sophisticated drugs, or who substitutes one remedy for another designated in a prescription, ought thereby to forfeit the recognition and influence of physicians.

CONSTITUTION AND BY-LAWS

FOR

COUNTY MEDICAL SOCIETIES.

(Approved by the Medical Society of the State of North Carolina at the annual session at Hot Springs, N. C., June 2, 1903.)

Introductory.

The Committee on Organization of the American Medical Association, which was continued at the Saratoga meeting, herewith submits a tentative Constitution and By-laws for county societies, and in doing so desires to say, that while the provisions it contains are deemed essential to good organization, some of the provisions are suggestive and educational in character and may not be applicable to every county or section. In such cases these may be omitted, or others more appropriate substituted for them. In any event, the high ideals for the individual physician, and the spirit of courtesy and kindness which should govern him in his dealings with his professional neighbors, are here set forth for thought and consideration.

The committee is not a unit as to whether there should be charged an admission fee as called for in section 1, chapter V, of the By-laws, but the majority of the committee believes that this is the correct principle, for the average individual does not appreciate that which he gets for nothing, and furthermore, that if an admission fee is charged the individual will not be as likely to drop out of the Society, as if he obtained his membership for nothing. The committee advises, however, that in organizing a county society, or before adopting the new constitution, that the charter shall be open for all in the county who are eligible and admit such charter members without the admission fee.

We close this report by making a quotation from our report when we submitted the Constitution and By-laws for State societies:

Much in the By-laws submitted may be regarded as "preaching," but it is inserted advisedly, with the sole object of arousing in the minds of each medical society member a desire for the accomplishment of greater ends than has been permitted by the customs and forms of the past. The committee earnestly desires that the State committees will continue the work of perfecting organization, actuated by that love for our profession that its ideals demand. With the medical profession well organized, medical science will more rapidly step to its appointed high place, and the profession which lives in its atmosphere will have that power and respect in the community that is its right.

J. N. McCormack, Bowling Green, Ky.,
P. Maxwell Foshay, Cleveland, Ohio,
George H. Simmons, Chicago, Illinois,
Committee.

Constitution.

ARTICLE I.—NAME AND TITLE OF THE SOCIETY.

The name and title of this organization shall be the ..... County Medical Society.

ARTICLE II.—PURPOSES OF THE SOCIETY.

The purpose of this Society shall be to bring into one organization the physicians of ..... County; so that by frequent meetings and full and frank interchange of views they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive that respect and support within its own ranks and from the community to which its honorable history and great achievements entitle it; and with other county societies to form the Medical Society of the State of North Carolina, and through it, with other State associations, to form and maintain the American Medical Association.

ARTICLE III.—ELIGIBILITY.

Every legally registered physician residing and practicing in ..... County, who is of good moral and professional standing and who does not practice or claim to practice sectarian medicine, shall be eligible for membership.

ARTICLE IV.—MEETINGS.

Regular meetings shall be held at such time and place as may be determined by the society. Special meetings may be called by the President on a written request of five members. Calls for special meetings shall state the object of such meeting, and no business except that stated in the call shall be transacted at such meeting.

ARTICLE V.—OFFICERS.

The officers of this Society shall consist of a President, Vice-President, Secretary, Treasurer, Delegates, and Board of (three) Censors. These officers, except the Delegates and Board of Censors, shall be elected annually for a term of one year. Delegates shall be elected for two years, or in accordance with the Constitution and By-laws of the State Association. One member of the Board of Censors shall be elected each year to serve for three years, provided that at the first election after the adoption of this Constitution one member of the board shall be elected for one, one for two, and one for three years.

ARTICLE VI.—FUNDS AND EXPENSES.

Funds for meeting the expenses of the Society shall be raised by admission fee, annual dues, special assessments, and voluntary contri-

bution. Funds may be appropriated by vote of the Society for such purposes as will promote its welfare and that of the profession.

ARTICLE VII.—CHARTER.

The Society shall apply to the State Society for a charter at the meeting at which this Constitution and By-laws are adopted, or as soon thereafter as practicable, and the charter shall be kept in the custody of the Secretary.

ARTICLE VIII.—INCORPORATION.

The Society shall have authority to appoint a Board of Trustees and to provide for articles of incorporation whenever it may deem the same necessary.

ARTICLE IX.—AMENDMENTS.

The Society may amend any article of this Constitution by a two-thirds vote of its members at any regular meeting, provided that such amendment shall have been read in open session at a previous regular meeting and shall have been sent by mail to each member ten days in advance of the meeting at which final action is to be taken.

By-Laws.

CHAPTER I.—MEMBERSHIP.

SECTION 1. The Society shall judge of the qualification of its members, but as it is the only door to the State Medical Society and to the American Medical Association for physicians within its jurisdiction, every reputable and legally qualified physician in ..... County, who does not practice or claim to practice sectarian medicine, shall be entitled to membership.

SEC. 2. A candidate for membership shall make application in writing, and shall state his age, his college, and date of graduation, the place in which he has practiced, and the date of registration in this State. The application must be accompanied by the admission fee, and must be endorsed by two members of this Society. It shall be referred to the Board of Censors, who shall inquire into the standing of the applicant, assure themselves that he or she is duly registered according to the laws of the State, and report at the next regular meeting of this Society. Election shall be by ballot, and two-thirds of the votes of the members present and voting shall be necessary to elect. The application shall be returned to the Secretary, who shall file it for future reference. Applications for membership from rejected candidates shall not be received within six months of such rejection.

SEC. 3. A physician accompanying his application with a transfer card from another component county society of this or any State within sixty days of the issuance of said card, may be admitted without fee

on a majority vote of the members present, and without the application being referred to the Board of Censors. Such applications may be acted on at the meeting at which they are presented on the vote of three-fourths of the members present, otherwise they shall lie over until the next regular meeting. No annual dues for the current year shall be charged against such members, provided the same have been paid to the society from which the applicant comes.

SEC. 4. A physician residing in an immediately adjoining county may become a member of this Society in like manner and on the same terms as a physician living in this county, on permission of the county society of the county in which the applicant lives, if there be one, or of the State Councilor for this jurisdiction.

SEC. 5. A member in good standing who is free from all indebtedness to this Society, and against whom no charges are pending, wishing to withdraw, shall be granted a transfer card. This card shall state the date the member associated himself with this Society, the date of issuance of the card, and shall be signed by the President and Secretary. It shall be accompanied with a copy of the application presented at the time the member joined the Society, for information to the society to which the member desires to attach himself.

SEC. 6. All members shall be equally privileged to attend all meetings and take part in all proceedings, and shall be eligible to any office or honor within the gift of the Society, so long as they conform to this Constitution and By-laws, including the payment of the dues to this Society and to the State Association: *Provided*, that no member under sentence of expulsion shall take part in any of the proceedings, or be eligible to any office until relieved of such disability. And provided further, that none of the privileges of membership shall be extended to any person not a member of this Society, except on a majority vote of the Society in regular meeting.

SEC. 7. A member who is guilty of a criminal offense or of gross misconduct, either as a physician or as a citizen, or who violates any of the provisions of this Constitution and By-laws, shall be liable to censure, suspension or expulsion. Charges against a member must be made in writing and be delivered to the Secretary, who shall immediately furnish a copy to the accused and to the Chairman of the Board of Censors. The Board of Censors shall investigate the charges on their merits, but no action shall be taken by the board before giving the accused and accusers ample opportunity to be heard. Nor shall any action be taken by the board within ten days of the presentation of the charges to the accused. The board shall report (1) that the charges are not sustained; or (2) that the charges are sustained, and that the accused be (*a*) censured; (*b*) suspended for a definite time, or (*c*) expelled. Censure or suspension shall require a two-thirds vote of the members present and voting, and a three-fourths vote of those present and voting shall be required to expel a member. No action

shall be taken by the Society in such cases until at least six weeks have elapsed since the filing of the charges. A member suspended for a definite time shall be reinstated at the expiration of the time, without action on his part or on the part of the Society.

SEC. 8. Kindly efforts in the interest of peace, conciliation or reformation, so far as possible and expedient, shall precede the filing of formal charges affecting the character or standing of a member, and the accused shall have opportunity to be heard in his own defense in all trials and proceedings of this nature.

SEC. 9. Members expelled from this Society for any cause shall be eligible for membership after one year from date of expulsion, and on the same terms and in like manner as original applicants.

CHAPTER II.—POWERS AND DUTIES.

SECTION 1. This Society shall have general direction of the affairs of the medical profession of the county, and its influence shall be constantly exerted to better the scientific, material and social condition of every physician within its jurisdiction. Systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every reputable physician in the county.

SEC. 2. A meeting shall be held at .... p. m. on the ..... in each month (or oftener); ..... members shall constitute a quorum. The officers and committee on program shall profit by experience and by the example of other similar societies, and strive to arrange for the most attractive and successful proceedings for each meeting. Younger members especially shall be encouraged to do post-graduate and original research work, and to give this Society the first results of such labors. Crisp papers and discussions and reports of cases shall be arranged for and encouraged, and tedious and profitless proceedings and discussions shall be avoided as far as practicable.

SEC. 3. One meeting during each year may be set apart for a discussion of the business affairs of the profession of the county, with the view of adopting the best methods for the guidance of all. In all proper ways the public shall be taught that business methods and prompt collections are essential to the equipment of the modern physician and surgeon, and that it suffers even more than the profession when this is not recognized.

SEC. 5. The Society shall endeavor to educate its members to the belief that the physician should be a leader in his community, in character, in learning, in dignified and manly bearing, and in courteous and open treatment of his brother physicians, to the end that the profession may occupy that place in its own and the public estimation to which it is entitled.

CHAPTER III.—OFFICERS.

SECTION 1. The officers of the Society shall be elected at the (December) meeting in each year, which shall be known as the annual meeting.

Nominations shall be made by informal ballot, and all elections shall be by ballot. The vote of a majority of all the members present shall be necessary to an election.

Sec. 2. The President shall preside at all meetings of the Society, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession in the county during the year, and it shall be his pride and ambition to leave it in better condition as regards both scientific attainments and harmony than at the beginning of his term of office.

Sec. 3. The Vice-President shall assist the President in the performance of his duties, shall preside in his absence, and, on his death, resignation or removal from the county, shall succeed to the presidency.

Sec. 4. The Secretary shall record the minutes of the meetings and receive and care for all records and papers belonging to the Society, including its charter. He shall keep account of and promptly turn over to the Treasurer all funds of the Society which may come into his hands. He shall make and keep a correct list of the members of this Society in good standing, noting of each his correct name, address, place and date of graduation, and the date of the certificate entitling him to practice medicine; and in a separate list he shall note the same facts in regard to each legally qualified physician in this county not a member of this Society. It shall be his duty to send a copy of such lists, on blank forms furnished him for that purpose, to the Secretary of the State Association, at such time as may be designated by the State Association. In making such lists he shall endeavor to account for each physician who has moved into or out of the county during the year, stating, when possible, both his present and past address. At the same time, and with his report of such lists of members and physicians, he shall transmit to the State Association his order on the Treasurer for the annual dues of the Society.

Sec. 5. The Treasurer shall receive all dues and money belonging to the Society from the hands of the Secretary or members, and shall pay out the same only on the written order of the Secretary.

Sec. 6. The delegates shall attend and faithfully represent the members of this Society and the profession of this county in the House of Delegates of the State Society, and shall make a report of the proceedings of that body to this Society at the earliest opportunity.

Chapter IV.—Committees.

Section 1. There shall be a Board of Censors as provided in the Constitution, a standing Committee on Programs and Scientific Work, a Committee on Public Health and Legislation, and such special committees as may from time to time be deemed necessary.

Sec. 2. *Board of Censors.*—This board, consisting of three members, one elected annually, shall examine and report on the qualification of applicants for membership, subjecting each applicant to such exam-

ination as it may deem necessary. It shall investigate charges preferred against a member, and report its conclusions and recommendations to the Society. In case of the absence of a member of the board, the President may appoint some member to fill the vacancy. The senior member of the board in point of service shall be chairman of the board.

Sec. 3. *Committee on Program and Scientific Work.*—This committee shall consist of the President, Vice-President and Secretary. It shall be its duty to promote the scientific and social functions of the Society by arranging attractive programs for each meeting, and by urging each member to take part in the scientific work. It shall stimulate fraternalism and good feeling among the members in every way possible.

Sec. 4. *Committee on Public Health and Legislation.*—This committee shall consist of three members, who shall be appointed annually by the President. It shall be its duty to enforce and support the sanitary and medical laws of the State in this county, to cooperate with the legislative committee of the State Association in all matters pertaining to legislation, and to prosecute quacks and medical pretenders in this county.

Chapter V.—Funds and Expenses.

Section 1. The admission fee, which must accompany the application, shall be $5.00, and shall include the annual dues for the fiscal year, provided that when more than one-half of the fiscal year has elapsed at the time of election of a member, one-half of the annual dues shall be remitted, making the admission fee in such cases $4.00. The admission fee shall be returned if the applicant is not accepted.

Sec. 2. The annual dues shall be $2.00, and shall be payable on January 1 of each year. Any member who shall fail to pay his annual dues by April 1 shall be held as suspended without action on the part of the Society. A member suspended for nonpayment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members.

Sec. 3. The fiscal year of this Society shall be from January to December, inclusive.

Chapter VI.—Order of Business.

The order of business shall be as follows:

1. Call to order by the President.
2. Reading of minutes of last meeting.
3. Clinical cases.
4. Papers and discussions.
5. Unfinished business.
6. Miscellaneous business.
7. Announcements.
8. Adjournment.

Chapter VII.—Rules of Order.

The deliberations of this Society shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by vote.

Chapter VIII.—Principles of Ethics.

The Principles of Ethics of the American Medical Association and of the Medical Society of the State of North Carolina shall be the Code of this Society.

Chapter IX.—Amendments.

These By-laws may be amended at any regular meeting by a two-thirds vote therefor, provided that such amendment has been read in open session at the preceding regular meeting, and a copy of the same has been sent to each member by the Secretary ten days in advance of the meeting at which final action is to be taken.

Alphabetical List of Members of the Medical Society of the State of North Carolina, with County in Which Local Membership and Residence is Indicated.

Name.	*County.*
Allen, B. G.	Vance
Adams, N. B.	Cherokee
Adams, L. C.	Carteret
Anderson, J. A.	Gaston
Ashworth, W. C.	Guilford
Anders, W. K.	New Hanover
Anderson, C. A.	Alamance
Ambler, Chase P.	Buncombe
Archer, I. J.	Buncombe
Anderson, J. G.	Buncombe
Anderson, Paul V.	Burke
Archey, L. M.	Cabarrus
Abernethy, H. L.	Catawba
Abernethy, W. L.	Catawba
Abernethy, J. F.	Cherokee
Aydlette, J. P.	Cleveland
Averitt, K. G.	Cumberland
Adams, C. A.	Durham
Adams, C. E.	Gaston
Anders, McT. G.	Gaston
Armfield, D. A.	Guilford
Arnold, L. J.	Harnett
Abel, J. F.	Haywood
Allen, R. L.	Haywood
Allen, T. A.	Henderson-Polk
Adams, M. R.	Iredell-Alexander
Anderson, Thos. E.,	Iredell-Alexander
Abernethy, H. N.	Lincoln
Alexander, J. R.	Mecklenburg
Alexander, Annie L.	Mecklenburg
Austin, J. A.	Mecklenburg
Austin, Fred.	Mecklenburg
Allen, Wm.	Mecklenburg
Achorn, J. Warren	Moore
Asbury, F. E.	Randolph
Akerman, Joseph	New Hanover
Attmore, Geo. S.	Pamlico
Aydlette, H. T.,	Pasquotank-Camden-Dare
Andrews, R. M.	Rutherford
Allen, Joseph A.	Stanly
Anderson, J. N.	Stanly
Allred, E. W.	Surry
Ashby, Thos. B.	Surry
Armfield, R.	Union
Ashcraft, J. E.	Union
Alston, B. P.	Vance
Abernethy, C. O.	Wake
Anderson, Albert	Wake
Anderson, W. H.	Wilson
Anderson, W. S.	Wilson
Buckner, R. G.	Buncombe
Bitting, N. D.	Durham
Blount, J. G.	Beaufort
Bullock, W. J.	Beaufort
Battle, S. W.	Buncombe
Briggs, H. H.	Buncombe
Brookshire, H. G.	Buncombe
Brown, Thos. E. W.	Buncombe
Brownson, W. C.	Buncombe
Burroughs, Jas. A.	Buncombe
Beall, L. G.	Burke
Barrier, P. A.	Cabarrus
Black, J. C.	Cabarrus
Blackburn, T. C.	Catawba
Bonner, K. P. B.	Carteret
Blake, J. F.	Columbus
Bullock, T. C.	Cumberland
Brown, G. W.	Cumberland
Buchanan, E. J.	Davidson
Byerly, A. B.	Davie
Boddie, N. P.	Durham
Bowling, E. H.	Durham
Brooks, B. N.	Durham
Baker, J. M.	Edgecombe
Buss, S. P.	Edgecombe
Bahnson, H. T.	Forsyth
Bizzelle, T. M.	Wayne
Bolton, M.	Northampton
Bullock, D. W.	New Hanover
Boyette, E. C.	Mecklenburg
Bradshaw, J. I.	Mitchell
Burns, A. D.	Iredell-Alexander
Borneman, J. H.	New Hanover
Bolles, C. P.	New Hanover
Bynum, John	Forsyth
Bynum, Wade H.	Forsyth
Burt, S. P.	Franklin
Bobbitt, E. H.	Franklin
Booth, S. D.	Granville
Banner, C. W.	Guilford
Battle, J. T. J.	Guilford
Beall, W. P.	Guilford
Bowman, H. P.	Guilford
Boyles, J. H.	Guilford
Brooks, J. E.	Guilford

Name.	*County.*
Brooks, Z. T.	Guilford
Burrus, John T.	Guilford
Boyles, A. C.	Harnett
Brown, J. S.	Henderson-Polk
Bell, A. E.	Iredell-Alexander
Baird, J. H.	Madison
Burnett, I. E.	Madison
Butt, V. R.	Mitchell
Bowman, H. E.	Montgomery
Bell, Chas. D.	New Hanover
Bellamy, W. J. H.	New Hanover
Bellamy, R. H.	New Hanover
Baynes, R. S.	Person
Bradsher, W. A.	Person
Basnight, T. G.	Pitt
Brown, J. P.	Robeson
Brawley, R. V.	Rowan
Brown, Geo. A.	Rowan
Busby, J. G.	Rowan
Bostic, W. C.	Rutherford
Biggs, H. M.	Rutherford
Blue, K. A.	Scotland
Bennett, A. M.	Swain
Blair, J. M.	Union
Blair, M. P.	Union
Bass, H. H.	Vance
Battle, K. P. Jr.	Wake
Ballard, A. M.	Buncombe
Baird, J. W.	Madison
Bryson, D. R.	Swain
Brown, V. J.	Swain
Baggett, L.	Columbus
Blake, J. F.	Columbus
Burleyson, L. N.	Guilford
Bell, G. M.	Wake
Blalock, N. M.	Wake
Boone, W. H.	Wake
Barefoot, J. J.	Wake
Barnes, B. F.	Wilson
Best, Henry	Wilson
Blackwell, T. L.	Yadkin
Clark, Geo. L.	Bladen
Calloway, A. W.	Buncombe
Cheeseborough, Thos. P.	Buncombe
Cotton, Clyde E.	Buncombe
Carroll, R. S.	Buncombe
Cocke, Jere	Buncombe
Caldwell, D. G.	Cabarrus
Carter, G. H.	Caldwell
Corpening, Oscar J.	Caldwell
Clarke, F. M.	Carteret
Campbell, Jas. R.	Catawba
Chapin, H. T.	Chatham
Casteel, L. R.	Cherokee
Champion, C. O.	Cleveland
Caton, Geo. A.	Craven
Cathell, J. E.	Davidson
Clodfelter, Chas. M.	Davidson
Carroll, J. W.	Duplin
Carr, R. L.	Duplin
Cheatham, Arch.	Durham
Copple, T. M.	Forsyth
Carlton, R. L.	Forsyth
Coggeshall, G. A.	Granville
Coble, W. A.	Guilford
Carpenter, F. A.	Iredell-Alexander
Coleman, T. S.	Johnston
Carroll, J. L.	Buncombe
Caraway, J. F.	Haywood
Choate, G. W.	Rowan
Council, J. B.	Rowan
Currie, E. W.	Surry
Crowell, L. A.	Lincoln
Costner, G. H.	Lincoln
Crowell, A. J.	Mecklenburg
Costner, T. F.	Mecklenburg
Clifford, J. S.	Mecklenburg
Cranmer, J. B.	New Hanover
Caldwell, W. M.	New Hanover
Cox, E. L.	Onslow
Cox, B. T.	Pitt
Croom, A. B.	Robeson
Croom, J. D.	Robeson
Caldwell, J. A.	Rowan
Crump, W. L.	Rowan
Chapman, G. M.	Rutherford
Cooper, G. M.	Sampson
Crumpler, Paul	Sampson
Cox, B. F.	Stanly
Cooper, J. A.	Swain
Carstarphen, W. T.	Vance
Cohen, B. W.	Washington
Crocker, S. H.	Wilson
Davis, T. W.	Forsyth
Dodds, S. A.	Rowan
Duffy, Francis	Craven
Dixon, W. H.	Beaufort
Dosher, J. Arthur	Brunswick
Dunn, Wm. L.	Buncombe
Davis, Geo.	Carteret
Duncan, C. L.	Carteret
Duffy, Chas.	Craven
Duffy, Frank	Craven
Duffy, Leinster	Craven
Dalton, D. N.	Forsyth
Dalton, W. N.	Forsyth
Davis, A. P.	Forsyth
Davis, J. W.	Forsyth
Dees, R. E.	Guilford

Name.	*County.*
Davis, W. W.	Gaston
Dodson, H. H.	Guilford
Davis, W. C.	Guilford
Denning, O. L.	Harnett
Drafts, A. B.	Henderson-Polk
Dixon, Guy E.	Henderson-Polk
Daligny, Chas.	Montgomery
Daniels, O. C.	Pamlico
Dees, D. A.	Pamlico
Dixon, Joseph	Pitt
Dickson, A. P.	Robeson
Dorsett, E. Rose	Rowan
Davis, Robt. L.	Swain
Dees, W. A.	Union
Dixon-Carroll, E. Delia	Wake
Dickinson, E. T.	Wilson
Disosway, A. W.	Washington
Duncan, J. E.	Wilkes
Duffy, R. N.	Craven
Dees, R. O.	Guilford
Dick, J. V.	Guilford
Duncan, G. F.	Guilford
Denny, W. W.	Lenoir
Evans, L. B.	Bladen
Elias, Lewis W.	Buncombe
Eckel, O. F.	Buncombe
Edwards, J. D.	Chatham
Ellis, Robt. C.	Cleveland
Eddleman, H. M.	Gaston
Edwards, G. C.	Greene
Edgerton, J. L.	Henderson-Polk
English, I. L.	Madison
Ewing, J. B.	Mitchell
Ellis, A. J.	Northampton
Evans, Wm. E.	Robeson
Everington, Geo. D.	Scotland
Ewbanks, J. B.	Union
Exum, W. P. Jr.	Wayne
Eller, A. J.	Wilkes
Edwards, C. P.	Yancey
Frazier, H. I.	Buncombe
Faucett, T. S.	Alamance
Freeman, R. A.	Alamance
Fletcher, M. H.	Buncombe
Ellington, J. H.	Stokes
Edwards, B. O.	Rowan
Fountain, Wm.	Pitt
Freeman, H. F.	Wilson
Flippin, J. M.	Forsyth
Flow, J. W.	Cabarrus
Foil, M. A.	Cabarrus
Flowers, G. E.	Caldwell
Flowers, C. E.	Caldwell
Floyd, A. G.	Columbus
Ferrell, J. A.	Duplin

Name.	*County.*
Faison, Jno. M.	Duplin
Felts, R. L.	Durham
Fearington, J. P.	Forsyth
Flynt, S. S.	Forsyth
Fulp, E.	Forsyth
Floyd, R. P.	Franklin
Fortune, A. F.	Guilford
Fox, M. F.	Guilford
Foscue, J. E.	Guilford
Freeman, W. G.	Hertford
Fleming, M. I.	Martin
Faison, I. W.	Mecklenburg
Flowers, C. A.	Pamlico
Fearing, I.,	Pasquotank-Camden-Dare.
Fearing, Zenos,	Pasquotank-Camden-Dare.
Frizzelle, M. T.	Pitt
Fox, Thos. I.	Randolph
Fowlkes, J. I.	Richmond
Fulp, Elias	Stokes
Flippen, R. E. L.	Surry
Flippen, S. T.	Surry
Fenner, E. F.	Vance
Fowler, M. L.	Wake
Farthing, L. E.	Wake
Faison, W. W.	Wayne
Fassett, B. W.	Durham
Goodman, E. G.	Brunswick
Glenn, E. B.	Buncombe
Gouger, G. J.	Cabarrus
Grier, S. A.	Cabarrus
Guin, L. E.	Union
Griffin, C. F.	Hertford
Gardner, G. D.	Buncombe
Gibbs, E. W.	Buncombe
George, D. S.	Carteret
Gregg, W. T.	Cleveland
Gibbs, N. M.	Craven
Graham, Geo. A.	Cumberland
Griggs, W. T.	Currituck
Graham, B. R.	Duplin
Graham, Joseph	Durham
Graham, Wm. A.	Durham
Gray, E. P.	Forsyth
Garren, R. H.	Gaston
Garrison, D. A.	Gaston
Glenn, H. F.	Gaston
Glenn, L. N.	Gaston
Gilmer, C. S.	Guilford
Gordon, J. R.	Guilford
Gove, Anna M.	Guilford
Gray, Claiborn	Guilford
Glasscock, Joy Harris	Guilford
Grayson, C. S.	Guilford
Greenwood, B. H.	Haywood

Name.	*County.*
Grady, Earl	Henderson-Polk
Greenwood, S. E.	Henderson-Polk
Guerard, Arthur R.,	Henderson-Polk
Green, A. W	Hertford
Gary, R. H	Hertford
Grady, J. C	Johnston
Griffin, J. A	Johnston
Graham, W. A	Mecklenburg
Grantham, N. L	Montgomery
Green, T. M	New Hanover
Gibbon, Robt. L	Mecklenburg
Griggs, J. B.,	Pasquotank-Camden-Dare
Goodman, A. B	Caldwell
Gibson, J. S	Scotland
Gibson, M. R	Robeson
Gill, R. J	Vance
Gilreath, F. H	Wilkes
Hunter, J. M. K.	Iredell-Alexander
Hunnicutt, W. J	Buncombe
Hunter, W. M	Mecklenburg
Harrell, U. S	Martin
Hill, J. N	Cherokee
Hardy, Ira M	Beaufort
Hunter, H. H	Beaufort
Harrell, W. J	Bertie
Harris, I. A	Buncombe
Hemell, M. H	Buncombe
Hall, Jas. K	Burke
Hennessee, E. A	Burke
Headen, W. E	Carteret
Highway, S. C	Cherokee
Hammond, A. F	Craven
Hughes, F. W	Craven
Highsmith, Seavy	Cumberland
Highsmith, J. F	Cumberland
Hill, D. J	Davidson
Hill, Joel	Davidson
Hatcher, T. R	Duplin
Hicks, C. S	Durham
Hicks, W. N	Durham
Holloway, R. L	Durham
Harrell, S. N	Edgecombe
Hammock, J. C	Forsyth
Harris, J. H	Franklin
Henderson, R. B	Franklin
Hunter, M. C	Gaston
Hays, Ben. K	Granville
Hardee, P. R	Granville
Harper, James H	Greene
Harrison, Edmund	Guilford
Hilton, J. J	Guilford
Holt, W. T	Guilford
Halford, J. W	Harnett
Hicks, I. F	Harnett
Highsmith, Chas.	Harnett
Holt, W. P	Harnett
Hudson, W. L	Harnett
Hyatt, Fred. C	Haywood
Howe, W. B. W	Henderson-Polk
Harris, J. E	Hyde
Hamer, E. A	Cleveland
Harrell, G. N	Hertford
Harper, J. O	Henderson-Polk
Houck, Albert	Iredell-Alexander
Hooks, Thel.	Johnson
Hargrove, W. F	Lenoir
Hoover, Chas. H	Lincoln
Hargrove, W. H	Martin
Hawley, F. O	Mecklenburg
Henderson, S. M	Mecklenburg
Hovis, Leighton	Mecklenburg
Harris, A. H	New Hanover
Harper, Chas. T	New Hanover
Honnett, J. H	New Hanover
Hall, Wright	New Hanover
Hudson, J. H	Pitt
Henly, Sam A	Randolph
Hubbard, C. C	Randolph
Hunter, J. V	Randolph
Hodgin, H. H	Robeson
Heilig, H. G	Rowan
Harris, E. B	Rutherford
Harrell, L. B	Rutherford
Hamrick, T. G	Rutherford
Hicks, O.	Rutherford
Hicks, Romeo	Rutherford
Haynes, B. M	Rutherford
Holmes, F. H	Sampson
Hiatt, H. B	Sampson
Hamer, A. W	Scotland
Hathcock, T. A	Stanly
Hill, W. I	Stanly
Hall, J. Clegg	Stanly
Hill, L. H	Stokes
Hollingsworth, Ed. M	Surry
Hollingsworth, J. M	Surry
Hollingsworth, R. E	Surry
Holt, Russell D	Swain
Houston, H. C	Union
Harris, F. R	Vance
Harris, H. H	Wake
Haywood, F. J	Wake
Haywood, Hubert	Wake
Horton, W. C	Wake
Hassell, S.	Washington-Tyrrell
Hassell, J. L	Washington
Halsey, B. F	Washington
Hardison, W. H	Washington

Name.	*County.*
Horton, W. P.	Wilkes
Herring, B. S.	Wilson
Harrison, J. S.	Wilson
Holcomb, C. M.	Yadkin
Hutchins, E. M.	Yadkin
Harding, T. R.	Yadkin
Ivey, W. P.	Caldwell
Irwin, Jno. R.	Mecklenburg
Ingram, C. B.	Montgomery
Jonas, J. F.	Gaston
Johnson, Floyd	Columbus
Justice, J. F.	Forsyth
Jarboe, Parran	Guilford
Jones, W. C.	Hyde
Jenkins, P. C.	Bertie
Jordan, Chas. S.	Buncombe
Johnson, A. E.	Buncombe
Johnson, J. T.	Catawba
Jones, R. DuVal	Craven
Jordan, Wm. S.	Cumberland
Julian, Chas. A.	Davidson
Johnson, N. M.	Durham
Jordan, A. C.	Durham
Jewett, R. D.	Forsyth
Jenkins, J. H.	Gaston
Jones, J. W.	Guilford
Jordan, G. E.	Guilford
Jones, W. M. Jr.	Guilford
Jones, E. H.	Hyde
Jurney, P. C.	Iredell-Alexander
Joyner, R. W.	Northampton
Jones, C. M.	Pitt
John, Peter	Scotland
Jones, A. G.	Stokes
Jerome, J. R.	Union
Johnson, R. W.	Wake
Judd, J. M.	Wake
Kafer, O. A.	Carteret
Killian, P. B.	Macon-Clay
Kennedy, G. W.	Duplin
Koonce, S. C.	New Hanover
Knox, John, Jr.	Robeson
Kellum, Wm. D.	Beaufort
King, R. M.	Cabarrus
Kent, A. A.	Caldwell
Kimbraugh, M. D.	Davie
Kapp, H. H.	Forsyth
Kernodle, G. W.	Guilford
Knight, W. P.	Guilford
Kirk, Wm. R.	Henderson-Polk
King, J. E.	Iredell-Alexander
Klutz, E. E.	Iredell-Alexander
Knight, J. B.	Martin
King, Parks M.	Mecklenburg
Knox, John	Mecklenburg
Keerans, L. C.	Mecklenburg
Kitchen, T. D.	Robeson
Kerr, C. S.	Sampson
Knox, A. W.	Wake
Kennedy, J. B.	Wayne
Kornegay, L. W.	Wayne
Long, Geo. W.	Alamance
Lafferty, J. S.	Cabarrus
Long, Fred. Y.	Catawba
Lattimore, E. B.	Cleveland
Lee, L. V.	Cleveland
Lilly, J. M.	Cumberland
Lane, Jno. L.	Duplin
Landing, J. F.	Duplin
Linville, A. Y.	Forsyth
Lockett, E. A.	Forsyth
Lott, H. S.	Forsyth
Ledbetter, A. E.	Guilford
Little, Thos. R.	Guilford
Long, Jno. W.	Guilford
Logan, Jno. E.	Guilford
Lee, S. P. J.	Harnett
Long, H. F.	Iredell-Alexander
Lyle, S. H.	Macon-Clay
Long, B. L.	Martin
Lowery, R. L.	Davie
Lapham, Mary E.	Macon-Clay
Linville, W. C.	Forsyth
Lassiter, Edgar	Northampton
Love, W. J.	New Hanover
Lane, W. W.	New Hanover
Lancaster, B. B.	Rutherford
Lafferty, R. S.	Mecklenburg
Long, V. M.	Mecklenburg
Lewis, H. W.	Northampton
Lumsden, W. J.	Pasquotank-Camden-Dare
Lister, J. L.	Northampton
Long, W. T.	Person
Love, B. E.	Person
Laughinghouse, Chas. O'H.	Pitt
Lovelace, T. B.	Rutherford
Leak, J. J.	Stokes
Lawrence, C. S.	Surry
Lyday, W. M.	Transylvania
Lewis, R. H.	Wake
Lee, R. E.	Wayne
Lamm, I. W.	Wilson
Leak, W. G.	Yadkin
Montgomery, H. M.	Alamance
Moore, H. R.	Alamance
Moore, Tilon V.	Brunswick

Name.	*County.*
Merriwether, F. T.	Buncombe
Merrimon, Louise A.	Buncombe
Minor, C. L.	Buncombe
Morris, E. R.	Buncombe
Matthews, J. M.	Cabarrus
Mattocks, C. J.	Caldwell
Malloy, S. A.	Caswell
Menzies, H. C.	Catawba
Mitchell, W. F.	Cleveland
Maxwell, F. B.	Columbus
Marsh, J. H.	Cumberland
Mann, S. M.	Currituck
Mock, J. H.	Davidson
Myers, J. A.	Davidson
Martin, J. F.	Davie
Martin, W. C.	Davie
Mann, T. A.	Durham
Manning, J. M.	Durham
Moore, R. A.	Durham
Moore, J. N.	Madison
Moore, J. E.	Haywood
Monk, G. M.	Rowan
Matheson, J. P.	Mecklenburg
Morrow, W. C.	Cherokee
Meroney, B. B.	Cherokee
Mason, C. N.	Carteret
Maynard, J. D.	Durham
Mayerberg, I. W.	Johnston
Myers, R. W.	Randolph
Mercer, W. P.	Edgecombe
Malone, J. E.	Franklin
Meadows, E. B.	Granville
Morris, J. A.	Granville
Murphy, W. B.	Greene
Meadows, W. J.	Guilford
Michaux, E. R.	Guilford
Miles, May S.	Guilford
Moseley, C. W.	Guilford
Melvin, W. C.	Harnett
Moore, F. T.	Harnett
Mease, J. H.	Haywood
Mitchell, J. H.	Hertford
Mann, J. A.	Hyde
Mann, J. E.	Hyde
Moore, N. G.	Iredell-Alexander
Munns, L. A.	Johnston
Monk, H. G.	Lenoir
Meisenheimer, C. A.	Mecklenburg
Munroe, J. P.	Mecklenburg
Murphy, J. G.	New Hanover
Moorehead, R. P.	Northampton
Merritt, J. H.	Person
Morrill, D. S.	Pitt
Morrill, Jenness	Pitt
Moye, E. A. Jr.	Pitt
Moore, W. J.	Randolph
Monk, H. L.	Rowan
Matthews, J. O.	Sampson
Morse, L. B.	Rutherford
Murphy, R. C.	Hyde
McNeil, J. W.	Cumberland
McCombs, C. J.	Gaston
McCoy, J. M.	Gaston
McFayden, H. L.	Haywood
Moir, S. A.	Stokes
Moore, W. B.	Stokes
Mebane, W. C.	Surry
Mashburn, B. D.	Wake
Myers, J. Q.	Wilkes
Moore, C. E.	Wilson
Moore, E. G.	Wilson
McPherson, J. W.	Alamance
McPherson, S. D.	Alamance
McBrayer, L. B.	Buncombe
McCracken, C. M.	Buncombe
McCampbell, Jno. M.	Burke
McNairy, C. B.	Caldwell
McBride, M. H.	Caswell
McBrayer, T. E.	Cleveland
McGougan, J. V.	Cumberland
McKethan, Jno. A.	Cumberland
McLean, Chas. E.	Gaston
McAnally, W. J.	Guilford
McKay, J. F.	Harnett
McLean, J. W.	Harnett
McCracken, J. R.	Haywood
McLaughlin, J. E.,	Iredell-Alexander
McDavitt, A. J.	Madison
McLaughlin, C. S.	Mecklenburg
McDonald, A. D.	New Hanover
McMillan, W. D.	New Hanover
McMullan, Oscar,	Pasquotank-Camden-Dare
McMillan, Ben. F.	Robeson
McPhail, W. A.	Robeson
McGehee, J. W.	Rockingham
McKenzie, W. W.	Rowan
McLean, R. H.	Sampson
McCotton, S. E.	Pamlico
McLean, Allen	Robeson
McKee, John	Wake
McCanless, W. V.	Stokes
McCanless, W. L.	Stokes
McConnell, J. W.	Mecklenburg
McPherson, R. G.	Alamance
McLean, Neil M.	Scotland
McAlister, Wm.	Vance
McCullers, J. J. L.	Wake
McGee, J. W. Sr.	Wake
McKee, Jas.	Wake
McGee, J. W. Jr.	Wake

Name.	*County.*
Newall, H. A.	Franklin
Noble, R. J.	Johnston
Nelson, R. J.	Martin
Nisbet, W. O.	Mecklenburg
Nicholson, J. L.	Onslow
Nichols, C. G.	Person
Nobles, J. E.	Pitt
Norment, R. M.	Robeson
Northrup, T. L.	Robeson
Norris, Henry	Rutherford
McLean, Peter	Scotland
Nance, Geo. B.	Union
Neal, Jno. W.	Union
Norman, G. W.	Guilford
Northington, J. M.	Columbus
Nichols, R. E.	Durham
Noble, R. P.	Johnston
Newell, L. B.	Mecklenburg
Nalle, B. C.	Mecklenburg
Nesbit, C. T.	New Hanover
Nichols, A. F.	Person
Norris, Philip	Rutherford
Orr, C. C.	Buncombe
Orr, Peter B.	Buncombe
Oates, Geo.	Cleveland
Olive, P. W.	Cumberland
O'Kelly, J. M.	Durham
Olive, W. W.	Durham
Pickett, J. A.	Alamance
Parris, O. J.	Alamance
Pritchard, Jno. L.	Bertie
Paquin, Paul	Buncombe
Purefoy, Geo. W.	Buncombe
Pritchard, A. T.	Buncombe
Phifer, Ed. W.	Burke
Pemberton, W. D.	Cabarrus
Picot, L. J.	Wake
Powell, E. C.	Wilson
Powell, R. A.	Rutherford
Powell, Jesse L.	Hertford
Penland, R. H.	Mitchell
Person, E. C.	Wayne
Pharr, T. F.	Cabarrus
Paul, W. T.	Carteret
Price, K. A.	Catawba
Patton, W. O.	Cherokee
Palmer, B. H.	Cleveland
Pollock, Raymond	Craven
Primrose, R. S.	Craven
Patterson, J. F.	Craven
Phillips, J. J.	Edgecombe
Pfohl, S. F.	Forsyth
Pepper, J. K.	Forsyth
Patrick, G. R.	Gaston
Paddison, J. R.	Guilford
Pollard, W. B.	Hertford
Parker, G. E.	Johnston
Person, J. B.	Johnston
Parrott, James M.	Lenoir
Parrott, W. T.	Lenoir
Parrott, A. DeK.	Lenoir
Petrie, R. W.	Lincoln
Peck, E. J.	Madison
Peeler, C. N.	Mecklenburg
Pharr, W. W.	Mecklenburg
Peterson, C. A.	Mitchell
Patrick, J. E.	Pitt
Pate, G. M.	Robeson
Pope, H. T.	Robeson
Poole, C. M.	Rowan
Peeler, J. H.	Rowan
Pate, W. T.	Scotland
Philips, M. D.	Stokes
Perkins, D. R.	Union
Pendleton, A. S.	Vance
Penny, J. A. J.	Wake
Powers, J. B.	Wake
Parker, J. R.	Wayne
Pegram, R. W. S.	Wilkes
Quickel, T. C.	Gaston
Rodman, Jno. C.	Beaufort
Ross, G. F.	Guilford
Ross, C. E.	Burke
Ross, J. K.	Mecklenburg
Rucker, A. A.	Rutherford
Rhyne, R. E.	Gaston
Rich, J. C.	Haywood
Robinson, Newton	Bladen
Reagan, J. A.	Buncombe
Reed, C. E.	Buncombe
Reynolds, Carl V.	Buncombe
von Ruck, Karl.	Buncombe
von Ruck, Silvio.	Buncombe
Ringer, P. H.	Buncombe
Rogers, Francis O.	Cabarrus
Royster, S. S.	Cleveland
Rhein, J. F.	Craven
Rose, A. S.	Cumberland
Ritter, F. W.	Currituck
Rodwell, J. W.	Davie
Ross, Geo. H.	Durham
Reid, R. M.	Gaston
Robinson, Frank	Gaston
Reitzel, C. E.	Guilford
Reitzel, J. R.	Guilford
Richardson, W. J.	Guilford
Roberson, Chas.	Guilford

Name.	*County.*
Reives, J. T.	Guilford
Reaves, W. P.	Guilford
Rowlands, H. W.	Harnett
Russell, Lloyd P.	Henderson-Polk
Rogers, W. A.	Macon-Clay
Roberts, Frank	Madison
Robinson, W. F.	Madison
Rhodes, J. S.	Martin
Register, E. C.	Mecklenburg
Russell, E. Reid	Mecklenburg
Reed, W. K.	Mecklenburg
Reed, D. H.	Northampton
Reedy, Howard	Robeson
Ramseur, G. A.	Rowan
Reid, Geo. P.	Rutherford
Ring, J. W.	Surry
Reece, J. M.	Surry
Ray, O. L.	Wake
Rankin, W. S.	Wake
Royster, H. A.	Wake
Royster, W. I.	Wake
Robinson, M. E.	Wayne
Royall, M. A.	Yadkin
Russell, S. L.	Yadkin
Ray, J. L.	Yancey
Robertson, W. B.	Yancey
Stroud, O. B.	Chatham
Skinner, L. C.	Mecklenburg
Strong, C. M.	Mecklenburg
Sloop, E. H.	Mitchell
Stancell, W. W.,	Washington-Tyrrell
Spruill, Jas. L,	Washington-Tyrrell
Stafford, W. G.	Alamance
Staley, S. W.	Beaufort
Sawyer, James	Buncombe
Sevier, Jos. T.	Buncombe
Smith, Owen	Buncombe
Stevens, M. L.	Buncombe
Smoot, J. E.	Cabarrus
Shuford, J. H.	Catawba
Stevenson, T. F.	Catawba
Smith, W. F.	Columbus
Stovy, J. G.	Caldwell
Street, N. H.	Craven
Staton, L. L.	Edgecombe
Speight, J. P.	Edgecombe
Shaffner, J. F.	Forsyth
Shaffner, J. F. Jr.	Forsyth
Spainhour, E. H.	Forsyth
Spencer, W. O.	Forsyth
Strickland, E. F.	Forsyth
Summers, C. L.	Forsyth
Sloan, J. M.	Gaston

Name.	*County.*
Sanderford, J. F.	Granville
Sikes, G. T.	Granville
Stamey, E. L.	Greene
Stanton, D. A.	Guilford
Sexton, C. H.	Harnett
Smith, F.	Harnett
Stringfield, Thos.	Haywood
Stringfield, Sam L.	Haywood
Salley, E. M.	Henderson-Polk
Saine, Jno. W.	Lincoln
Siler, F. L.	Macon-Clay
Saunders, J. H.	Martin
Smithwick, J. E.	Martin
Simmons, Jno. O.	Mecklenburg
Slagel, E. P.	Mitchell
Sevier, D. E.	Buncombe
Strickland, W. J.	Chatham
Schofield, E. J. S.	Cumberland
Schubert, S. H.	Edgecombe
Stewart, J. J.	Gaston
Stovall, Arnold	Gaston
Swindell, W. L.	Hyde
Smith, J. Mc.	Robeson
Smith, Wm. H.	Wilson
Shamberger, J. B.	Montgomery
Speight, R. H.	Nash
Schonwald, Jno. T.	New Hanover
Slocum, R. B.	New Hanover
Sutton, C. W.	Onslow
Sawyer, C. W.,	Pasquotank-Camden-Dare
Sawyer, W. W.,	Pasquotank-Camden-Dare
Swann, J. F.	Person
Schaub, O. P.	Person
Skinner, L. C.	Pitt
Summers, W. I.	Randolph
Stamps, Thos.	Robeson
Sawyer, C. J.	Bertie
Smoot, M. L.	Rowan
Summerell, E. M.	Rowan
Stokes, J. E.	Rowan
Sikes, G. L.	Sampson
Sloan, Henry	Sampson
Stevens, J. A.	Sampson
Shaw, Wm. G.	Scotland
Smith, J. T.	Stokes
Smith, J. B.	Surry
Stone, Wm. M.	Surry
Stevens, S. A.	Union
Stewart, H. D.	Union
Sorrell, L. P.	Wake
Stevens, Ralph S.	Wake
Speight, J. W.	Washington
Somers, L. P.	Wilkes
Shore, Thad. W.	Yadkin

Name.	*County.*
Tyson, T. D.	Alamance
Tayloe, David T.	Beaufort
Tennent, G. S.	Buncombe
Taylor, I. M.	Burke
Taylor, W. L.	Granville
Thomas, P. J.	New Hanover
Taylor, W. I.	Harnett
Teague, J. H.	Swain
Tuglum, C. B.	Montgomery
Taylor, George	Gaston
Thompson, A. T.	Montgomery
Taylor, J. N.	Chatham
Thornton, Irene	Cumberland
Teague, R. J.	Durham
Thigpen, W. J.	Edgecombe
Turner, J. A.	Guilford
Turner, J. P.	Guilford
Tankersley, J. W.	Guilford
Tull, Henry	Lenoir
Thompson, C. D.	Lincoln
Tilson, J. C.	Madison
Thomas, Geo. G.	New Hanover
Thompson, Cyrus	Onslow
Thompson, N. A.	Robeson
Trantham, H. T.	Rowan
Twitty, J. C.	Rutherford
Twitty, T. B.	Rutherford
Thompson, J. B.	Rutherford
Thompson, W. A.	Rutherford
Taylor, W. S.	Surry
Teague, J. H.	Swain
Tucker, Jno. H.	Vance
Templeton, Jas. M.	Wake
Thompson, S. W.	Wake
Tucker, H. McKee	Wake
Turner, J. M.	Wilkes
Tatom, J. F.	Stanly
Upchurch, C. G.	Chatham
Utley, H. H.	Harnett
Underhill, H. P.	Wake
Vestal, W. J.	Davidson
Vick, Geo. D.	Johnston
Walker, W. E.	Alamance
Walker, L. A.	Alamance
Watson, D. I.	Brunswick
Weaver, H. B.	Buncombe
Whittington, W. P.	Buncombe
Williams, J. H.	Buncombe
Wallace, J. W.	Cabarrus
Whitesides, B. F.	Catawba
Wilson, W. E.	Catawba
Williams, J. B.	Franklin
Woodard, A. G.	Johnston
Williams, J. W.	Martin
Ward, J. E.	Martin
Wilkerson, C. E.	Randolph
Webb, Ben. G.	Cherokee
Wood, J. W.	Cleveland
Withers, S. M.	Columbus
Willingham, B. J.	Cumberland
Williams, J. M.	Duplin
Ward, M. P.	Durham
Woodard, C. A.	Durham
Walton, C. B.	Edgecombe
Williams, J. D.	Forsyth
Wright, J. Thos.	Forsyth
Wilkins, S. A.	Gaston
Wilson, F. G.	Gaston
West, Albert	Greene
Whittington, W. W.	Greene
Wilson, A. R.	Guilford
Williams, Jno. R.	Guilford
Williams, Jno. A.	Guilford
Whittaker, A. C.	Guilford
Wills, J. M.	Guilford
Williams, B. B.	Guilford
Way, J. Howell	Haywood
Willis, A. P.	Haywood
Wilson, J. E.	Haywood
Waldrop, J. G.	Henderson-Polk
Windley, R. E.	Hyde
Williams, J. W.	Hyde
Wharton, L. D.	Johnston
Whittaker, R. A.	Lenoir
Woodley, C. B.	Lenoir
Wooten, R. W.	Lenoir
Whitaker, F. A.	Lenoir
Wright, J. V.	Lincoln
Weaver, W. J.	Madison
Woody, S. B.	Madison
Warren, W. E.	Martin
Wakefield, W. H.	Mecklenburg
Walker, C. E.	Mecklenburg
Whisnant, A. M.	Mecklenburg
Witherbee, W. D.	Mecklenburg
Wooten, W. H.	Mecklenburg
Wessell, J. C.	New Hanover
Wood, E. J.	New Hanover
Walters, C. M.	Alamance
Woodley, W. T.	Mecklenburg
Whitehead, R. H.	Orange
Williams, Claude B.,	Pasquotank-Camden-Dare
Wood, J. E.,	Pasquotank-Camden-Dare
Walker, H. D.,	Pasquotank-Camden-Dare
Wilborn, W. R.	Randolph
West, R. M.	Rowan
Whitehead, John	Rowan

Name.	*County.*
Woodson, C. W.	Rowan
Wiseman, C. B.	Rutherford
Wilson, R. B.	Sampson
Whitley, D. P.	Stanly
Woltz, J. L.	Surry
Woltz, J. R.	Surry
Welch, J. E. T.	Swain
Ward, Y. A.	Wilson
Watson, J. B.	Wake
Whitley, A. D. N.	Union
Ward, W. H.	Washington
Whitaker, Joel	Wake
White, J. W.	Wilkes
Williams, A. F.	Wilson
Young, R. S.	Cabarrus
York, A. A.	Davidson
Yarborough, R. F.	Franklin
York, H. B.	Martin
Young, G. E.	Rutherford
Young, C. R.	Harnett
Zimmerman, C. St. V.	Buncombe
Zimmerman, R. U.	Davidson

Members of the Component County Medical Societies of the Medical Society of the State of North Carolina, June 16, 1909.

ALAMANCE COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, W. G. Stafford, Burlington Bellevue, N. Y., 1871.	1879	1890
Secretary, L. A. Walker, Burlington Univ. Coll. Med., Va., 1899.	1899	1904
Anderson, C. A., Burlington P. & S., Balto., 1900.	1893	1899
Faucette, Thos. S., Burlington Balto. Med. Coll., 1893.	1893	1896
Freeman, R. A., Burlington 1 1-2 course, Wash. Univ., Balto., 1879.	1879	1904
Mann, E. D., Saxapahaw	....	....
Montgomery, H. M., Burlington N. C. Med. Coll., 1903.	1903	1904
Moore, H. R., Burlington P. & S., Atlanta, 1899.	1899	1904
Page, J. W., Burlington P. & S., Balto.	....	1904
Pickett, J. A., Burlington, R. F. D. Univ. Nashville, 1894.	1894	1904
Long, G. W., Graham Univ. Pa., 1877.	1877	1877
McPherson, J. W., Haw River Balto. Med. Coll., 1898.	1898	1898
McPherson, S. D., Haw River Univ. Md., 1903.	1903	1903
McPherson, Robert G., Saxapahaw Univ. N. C., 1908.	1908	1909
Tate, W. N., Mebane Louisv. Med. Coll., 1874.	....	1905
Paris, O. J., Graham Balto. Med. Coll., 1897.	1897	1904
York, N. D., Mebane	....	1905
Watson, Geo. S., Elon College P. & S., Balto., 1874.	....	1904
Walker, W. E., Graham Med. Coll., Va., 1903.	1903	1905
Walters, C. M., Union Ridge Univ. of Md.	1908	1909

BEAUFORT COUNTY SOCIETY.

President, W. H. Dixon, Edwards Med. Coll. Va., 1901.	1901	1901
Secretary, Ira M. Hardy, Washington Med. Coll. Va., 1901.	1902	1902

Members and Address.	*Licensed.*	*Joined State Society.*
Blount, J. G., Washington Bellevue Med. Coll., 1892.	1892	1893
Bullock, W. J., Belhaven Univ. Pa., 1858.	....	1904
Hunter, H. H., Pinetown Med. Coll. Va., 1900.	1901	1904
Kellum, W. D., Belhaven	....	1904
Rodman, John C., Washington Bellevue Med Coll., 1892.	1892	1895
Staley, S. W., Aurora Med. Coll. S. C., 1901.	1901	1904
Tayloe, D. T., Washington Bellevue Med., 1885.	1885	1885

BERTIE COUNTY SOCIETY.

President, P. C. Jenkins, Roxobel Bellevue Med., 1873.	....	1904
Secretary, Jno. L. Pritchard, Windsor P. & S., Balto., 1906.	1906	1906
Mitchell, Wayland, Lewiston Univ. Md., 1895.	1896	1904
Horton, E. H., Aulander P. & S., Balto., 1884.	1885	1904
Harrell, W. J., Aulander P. & S., Balto., 1884.	1885	1892
Nowell, Luther A., Colerain Univ. Md., 1894.	1894	1905
Capehart, A., Roxobel Balto. Med. Coll., 1887.	1887	1905
Ruffin, J. B., Powellsville Univ. South, Sewanee, Tenn., 1898.	1906	1906
Sawyer, Chas. J., Windsor P. & S., Balto., 1895.	1895	1897

BLADEN COUNTY SOCIETY.

President, Geo. L. Clark, Clarkton Univ. N. Y., 1876.	....	1904
Secretary, Newton Robinson, Elizabethtown Univ. Pa., 1869.	....	1904
Evans, Dr. L. B., Clarkton Univ. Coll. Med., 1900.	1900	1904

BURKE COUNTY SOCIETY.

President, James K. Hall, Morganton Jeff. Med. Coll., 1904.	1906	1906
Secretary, Louis G. Beall, Morganton N. C. Med., 1906.	1906	1908

Members and Address.	*Licensed.*	*Joined State Society.*
Anderson, Paul V., Morganton Univ. Va., 1904.	1904	1906
Hennessee, E. A., Glen Alpine U. S. Grant Univ., 1900.	1902	1904
McCampbell, John, Morganton Balto. Med., 1894.	1895	1899
Phifer, E. W., Morganton N. C. Med. Coll., 1901.	1902	1904
Taylor, Isaac M., Morganton P. & S., N. Y., 1882.	1883	1883
Riddle, J. B., Morganton Vanderbilt, 1898.	1904	1905
Ross, C. E., Morganton	....	1909

BUNCOMBE COUNTY SOCIETY.

President, M. L. Stevens, Asheville Balto. Med., 1891.	1892	1893
Secretary, G. S., Tennent, Asheville N. C. Med. Coll., 1894.	1894	1898
Ambler, C. P., Asheville West. Reserve Univ., O., 1889.	1890	1891
Anderson, J. G., Asheville Univ. N. C., 1906.	1907	1908
Archer, T. J., Black Mountain N. West Univ., 1896.	1905	1906
Ballard, A. M., Asheville	....	1909
Battle, S. W., Asheville Bellevue, N. Y., 1875.	....	1887
Briggs, H. H., Asheville Yale Univ., 1897.	1901	1903
Brookshire, H. G., Asheville, R. F. D., 5 N. C. Med., 1905.	1905	1906
Brown, T. E. W., Asheville P. & S., N. Y,. 1900.	1905	1904
Brownson, W. C., Asheville Univ. N. Y., 1878.	....	1896
Buckner, R. G., Asheville Arkansas Univ., 1897.	1907	1908
Burroughs, J. A., Asheville Louis. Med., 1882.	1884	1889
Calloway, A. W., Asheville Chi. Homeop. Med. Coll., 1875.	1899	1904
Carroll, R. S., Asheville Rush Med. Coll., 1897.	1905	1906
Carroll, J. L., Swannanoa	....	1909
Cheesborough, T. P., Asheville Univ. N. Y., 1891.	1891	1899

Members and Address.	*Licensed.*	*Joined State Society.*
Cocke, J. E., Asheville Louis. Med. Coll., 1905.	1905	1906
Cotton, C. E., Black Mountain Univ. Wooster, O., 1889.	1901	1901
Dunn, W. L., Asheville Univ. Mich., 1891.	1900	1900
Eckel, O. F., Asheville Med. Col. of S. C.	1907	1901
Gibbs, E. W., Asheville U. N. C., 1907.	1907	1909
Hunnicutt, W. J., Asheville Univ. Tenn., 1895.	1896	1899
Elias, L. W., Asheville P. & S., N. Y., 1903.	1906	1906
Fletcher, M. H., Asheville Bellevue Med. Coll., 1881.	1881	1881
Frazer, H. T., Asheville P. & S., N. Y., 1906.	1908	1906
Glenn, E. B., Asheville Jeff. Med., 1896.	1896	1899
Gardner, G. D., Asheville Tenn. Med., 1908.	1908	1909
Hennell, M. H., Asheville Eclectic Med. Institute, Cincinnati, 1891.	1907	1908
Johnson, A. E., Asheville Womans Med. Col., Pa., 1905.	1905	1907
Jordan, C. S., Asheville Univ. N. Y., 1890.	1891	1899
McBrayer, L. B., Asheville Louis. Med. Coll., 1889.	1891	1899
McCracken, C. M., Fairview Non-graduate N. C. Med. Coll., 1896.	1896	1904
Meriwether, F. T., Asheville Univ. Louis., Ky., 1886.	1888	1888
Merrimon, L. A., Asheville Woman's Med. Coll., 1900.	1899	1904
Minor, C. L., Asheville Univ. Va., 1888.	1895	1898
Morris, E. R., Asheville Louis. Med. Coll.	1896	1899
Orr, C. C., Asheville Univ. Md., 1904.	1904	1905
Orr, P. B., Asheville Jeff. Med. Coll., 1901.	1901	1904
Paquin, P., Asheville Univ. Mo., 1887.	1899	1899
Pritchard, A. T., Asheville Jeff., Phila., 1905.	1905	1906

Members and Address.	*Licensed.*	*Joined State Society.*
Purefoy, G. W., Asheville Jeff., Phila., 1876.	1884	1904
Reynolds, C. V., Asheville Univ. N. Y., 1895.	1895	1896
Reynolds, S. H., Asheville Louis. Med. Coll., 1903.	1903	1903
Ringer, P. H., Asheville P. & S., N. Y., 1904.	1906	1907
Ruck, K. von, Asheville Univ. Mich., 1879.	1899	1902
Ruck, S. H. von, Asheville Bellevue, 1899.	1899	1902
Sawyer, J., Asheville Bellevue Med. Coll., 1897.	1897	1899
Sevier, J. T., Asheville Jeff. Med., 1895.	1895	1899
Sevier, D. E., Asheville Jeff. Med., 1895.	1895	1899
Smith, O., Asheville Jeff. Med., 1905.	1905	1906
Weaver, H. B., Asheville Wash. Univ. Med. Coll., Md., 1872.	1881	1881
Whittington, W. P., Asheville P. & S., Balto., 1882.	1882	1882
Williams, J. H., Asheville Univ. Iowa, 1862.	1881	1881
Harris, I. A., Alexander, R. F. D. 2 1 Co. Jeff. Med. Coll.	1885	1881
Reagan, J. A., Weaverville Vanderbilt Univ., 1877.	....	1881
Reed, C. E., Banner Elk Jefferson Coll., 1905.	1902	1905
Zimmerman, C. St. V., Asheville Nat. Univ., D. C., 1895.	1903	1904

BRUNSWICK COUNTY SOCIETY.

President, E. G. Goodman, El Paso Univ. Md., 1891.	1891	1892
Secretary, J. Arthur Dosher, Southport Balto. Med. Coll., 1903.	1903	1903
Watson, D. I., Southport Univ. Louisville, Ky., 1890.	1890	1891
Moore, T. V., Phœnix Balto. Med., 1901.	1901	1901

CABARRUS COUNTY SOCIETY.

President, W. D. Pemberton, Concord Univ. Md., 1887.	1887	1887

Members and Address.	*Licensed.*	*Joined State Society.*
Secretary, J. E. Smoot, Concord Baltimore, Md.	1901	1902
Archey, L. M., Concord P. & S., Balto.	1880	1888
Caldwell, D. G., Concord Univ. Md.	1885	1885
Lafferty, J. S., Concord Univ. Md.	1881	1890
Wallace, J. W., Concord N. C. Med. Coll., 1907.	1907	1908
Black, J. C., Pioneer Mills Univ. Md.	1886	1891
Gouger, G. J., Concord Univ. Md.	1891	1899
Young, R. S., Concord N. Y. Univ. Med. Coll.	1881	1882
Pharr, Theo. F., Concord Jeff. Med.	1875	1881
Matthews, J. M., Mt. Pleasant Univ. Tenn.	....	1899
King, R. M., Concord Jeff. Med., 1903.	1903	1905
Rogers, F. O., Concord Univ. Md., 1901.	1901	1901
Grier, S. A., Concord Jeff. Med. Coll., 1879.	....	1904
Flow, J. W., Concord N. C. Med., 1898.	1903	1904
Barrier, P. A., (honorary), Mt. Pleasant Long Island Med. Coll., 1861.	1861	1861
Foil, M. A., Mt. Pleasant Jeff. Med., 1891.	1891	1908

CALDWELL COUNTY SOCIETY.

President, A. A. Kent, Lenoir Jeff. Med. Coll., 1885.	1885	1904
Secretary, W. P. Ivey, Lenoir Univ. Md., 1885.	1885	1891
Mattocks, C. J., Lenoir Med. Coll., Va., 1864.	....	1904
McNairy, C. B., Lenoir P. & S., Balto., 1893.	1893	1905
Wilson, C. L., Lenoir U. S. Grant Univ., 1903.	1903	1905
Moore, J. C., Lenoir Richmond, 1907.	1907	1908
Carter, G. H., King's Creek, R. F. D. Univ. N. Y., 1877.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Corpening, O. J., Granite Fills Univ. Coll. Med., Va., 1906.	1906	1906
Flowers, B. G., Granite Falls, R. F. D. Non-Grad.; practice prior to 1885.	....	1904
Flowers, G. E., Granite Falls Ico. So. Med. Coll.	....	1904
Storey, J. G., Mortimer Tenn. Med., 1898.	1898	1908
White, W. M., Collettsville P. & S., Atlanta, 1899.	1899	1904
Jones, A. D., Granite Falls Non-Grad.: Prior to 1885.	....	1904

CARTERET COUNTY SOCIETY.

President, Geo. Davis, Beaufort Ky. Sch. Med., 1906.	1902	1904
Secretary, K. P. B. Bonner, Morehead City Med. Coll. Va., 1905.	1905	1904
Adams, L. C., Atlantic N. C. Med. Coll., 1903.	1903	1906
Clark, F. M., Beaufort P. & S., Balto., 1894.	1894	1904
Duncan, C. L., Beaufort Univ. Md., 1902.	1902	1904
George, D. S., Marshallburg N. C. Med. Coll., 1903.	1903	1903
Headen, W. E., Morehead City Univ. Md., 1891.	1890	1891
Kafer, O. A., Newport Univ. Md., 1905.	1905	1909
Paul, W. T., Stacey Univ. Md., 1869.	....	1904
Mason, C. N., Harlows P. & S., Balto., 1882.	....	1904

CASWELL COUNTY SOCIETY.

President, S. A. Malloy, Yanceyville Ky. School of Med., 1897.	1898	1903
Secretary, M. H. McBryde, Semora Univ. Coll. Med., 1901.	1901	1904

CATAWBA COUNTY SOCIETY.

President, B. F. Whitesides, Hickory Univ. Md., 1877.	1881	1881
Secretary, T. F. Stevenson, Hickory Louis. Med. Coll., 1893.	1893	1905
Campbell, J. R., Newton Wash. Univ., Md., 1871.	....	1898

Members and Address.	*Licensed.*	*Joined State Society.*
Johnson, J. T., Hickory Univ. Pa., 1861.	....	1904
Wilson, W. E., Sherrill's Ford Louis. Med. Coll., 1886.	1886	1904
Abernathy, H. L., Hickory Louis. Med. Coll., 1886.	1887	1904
Shuford, J. H., Hickory Univ. Mich., 1901.	1902	1902
Menzies, H. C., Hickory N. C. Med. Coll., 1904.	1894	1894
Abernathy, W. L., Hickory Ky. Sch. Med., 1877.	1879	1904
Long, F. Y., Hickory N. C. Med. Coll., 1899.	1898	1904
Blackburn, T. C., Hickory Baltimore Med. Coll., 1896.	1896	1908
Price, K. A., Hickory Univ. Va., 1907.	1907	1908

CHATHAM COUNTY SOCIETY.

President, R. W. Palmer, Gulf Louis. Med. Coll., 1890.	1891	1901
Secretary, H. T. Chapin, Pittsboro Louis. Med. Coll., 1890.	1886	1886
Edwards, J. D., Siler City Louis. Med. Coll., 1887.	....	1894
Strickland, W. J., Moncure	....	1909
Upchurch, C. G., Apex, R. F. D. No. 3	....	1909
Strowd, O. B., Moncure	....	1909
Farthing, L. E., Pittsboro	....	1909
Laster, P. D., Lockville	....	1909

CHEROKEE COUNTY SOCIETY.

President, J. N. Hill, Murphy Univ. Louisville, 1909.	1909	1909
Secretary, W. C. Morrow, Andrews Atlanta Sch. Med., 1909.	1909	1909
Abernathy, J. F., Murphy Ky. School Med., 1883.	1885	1904
Highway, S. C., Murphy Med. Coll. Ohio, 1885.	1904	1904
Casteel, L. R., Culbertson Vanderbilt Univ., 1893.	1906	1906
Patton, W. O., Murphy Coll. P. & S., Balto., 1883.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Webb, B. G., Andrews Louisville Med. Coll., 1885.	1885	1904
Meroney, B. B., Murphy	....	....
Adams, N. B., Murphy Tenn. Med. Coll., 1897.	1909	1909

CLEVELAND COUNTY SOCIETY.

President, E. B. Lattimore, Shelby Bellevue Med. Coll., 1898.	1896	1908
Secretary, W. F. Mitchell, Shelby University of Md., 1899.	1900	1904
Grigg, W. T., Shelby, R. F. D. Atlanta Med. Coll., 1891.	1904	1904
Palmer, B. H., Shelby Louisville Med. Coll., 1896.	1898	1904
Horner, E. A., Fallstown	....	....
Ellis, R. C., Shelby Univ. of Balto., 1886.	....	1904
Lee, L. V., Lattimore Atlanta Med. Coll., 1894.	1897	1904
Royster, S. S., Mooresboro Tenn. Med., 1890.	1896	1904
Wood, J. W., Shelby, R. F. D.	1903	1904
Aydlette, J. P., Earls University Ky., 1901.	1903	1904
Champion, C. O., Mooresboro Atlanta Med. Coll., 1887.	1902	1904
Oats, Geo., Grover Univ. Louisville, Ky., 1894.	1896	1904
McBrayer, T. E,, Shelby Washington Univ., 1875.	....	1904

COLUMBUS COUNTY SOCIETY.

President, A. G. Floyd, Fair Bluff Univ. Md., 1885.	....	1904
Secretary, L. Baggett, Tabor N. C. Med. Coll., 1907.	1907	1908
Blake, J. F., Chadbourn N. C. Med. Coll., 1905.	1905	1906
Crowell, W. H., Burgaw Univ. of Md., 1895.	1895	1896
Maxwell, H. B., Whiteville Univ. Md., 1902.	1902	1902
Jordan, D. B., Cronly Jeff. Med., 1885.	....	1904
Johnston, T. C., Lumberton Med. Coll. Va., 1903.	1903	1905

Members and Address.	*Licensed.*	*Joined State Society.*
Smith, W. F., Chadbourn N. C. Med. Coll., 1904.	1904	1905
Withers, S. M., Chadbourn N. C. Med. Coll., 1902.	1902	1902
Northington, J. M., Boardman	....	....
Johnston, Floyd, Cerro Gordo Memphis Hosp. Coll. of Med., 1903.	1903	1909

CRAVEN COUNTY SOCIETY.

President, Francis Duffy, New Bern Univ. Va., 1868.	1872	1872
Secretary, Joseph F. Patterson, New Bern Jeff. Med. Coll., 1906.	1906	1906
Duffy, Charles, New Bern Univ. N. Y., 1859.	....	1870
Primrose, R. S., New Bern Bellevue Med. Coll., 1889.	1890	1904
Hughes, F. W., New Bern Univ. Pa., 1880.	1885	1904
Jones, R. D. V., New Bern Univ. Md., 1896	1897	1904
Duffy, L., New Bern P. & S., Balto., 1889.	1889	1906
Rhem, J. F., New Bern Bellevue Med. Coll., 1894.	1893	1904
Gibbs, N. M., New Bern Univ. of Md., 1896.	1895	1907
Caton, G. A., New Bern Med. Coll. Va., 1898.	1898	1904
Hammond, A. F., Pollocksville Univ. Med. Coll., Va., 1903.	1903	1905
Duffy, R. N., New Bern Johns Hopkins, 1906.	1907	1908
Street, N. H., New Bern Univ. of N. Y., 1881.	1883	1884
Pollock, Raymon, Dover Jeff. Med. Coll., 1897.	1900	1900

CUMBERLAND COUNTY SOCIETY.

President, A. S. Rose, Fayetteville Univ. Coll. Med., Va., 1901.	1901	1904
Secretary, William S. Jordan, Fayetteville Univ. of N. C., 1906.	1906	1906
Averitt, K. G., Cedar Creek Balto. Med. Coll., 1893.	1893	1902
Brown, George W., Raeford Ky. School of Med., 1898.	1900	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Bullock, T. C., Autryville P. & S., Balto., 1885.	1885	1904
Dye, John C., Fayetteville N. C. Med. Coll., 1905.	1905	1906
Graham, George A., Raeford Univ. of N. Y., 1876.	....	1904
Highsmith, J. F., Fayetteville Jeff. Med. Coll., 1889.	1889	1893
Highsmith, Seavy, Fayetteville Univ. Coll. Med., Va., 1901.	1901	1902
Lilly, J. M., Fayetteville Univ. Coll. Med., Va., 1903.	1903	1904
Marsh, J. H., Fayetteville Jeff. Med. Coll., 1889.	1889	1890
McGougan, J. V., Fayetteville Univ. of Med., Balto., 1893.	1893	1904
McKethan, John A., Fayetteville N. C. Med. Coll., 1901.	1901	1904
McNeill, J. W., Hope Mills Bellevue Hosp. Med. Coll., 1876.	1876	1876
Olive, P. W., Wade P. & S., Balto., 1907.	1907	1908
Scofield, E. J. S., Fayetteville Univ. of N. C., 1907.	1907	1908
Willingham, B. J., Hope Mills Med. Coll. Va., 1906.	1907	1908
Thornton, Irene, Fayetteville Woman's Med. Coll. of Balto., Md., 1908.	1908	1908

CURRITUCK COUNTY SOCIETY.

President, H. M. Shaw, Shawboro Univ. Med., 1871.	....	1904
Secretary, Stuart M. Mann, Moyock P. & S., Balto., 1885.	1885	1904
Ritter, F. W., Moyock One course P. & S., Balto., 1885.	1885	1885
Griggs, W. T., Poplar Branch Univ. Va., 1896.	1896	1901
Newbern, J. M., Jarvisburg Georgetown Univ., 1898.	1899	1904
Garrington, J. F., Coinjock	....	1904

DAVIDSON COUNTY SOCIETY.

President, E. J. Buchanan, Lexington Univ. Md., 1892.	1892	1900
Secretary, D. J. Hill, Lexington P. & S., Balto., 1893.	1893	1894

Members and Address.	*Licensed.*	*Joined State Society.*
Vestal, W. J., Lexington P. & S., Balto., 1883.	....	1893
Clodfelter, C. M., Lexington P. & S., Balto., 1905.	1905	1906
Hill, Joel, Lexington P. & S., Balto., 1880.	1885	1886
Myers, J. A., Linwood, No. 2	....	....
Cathell, J. E., Linwood, No. 1 Univ. Md., 1899.	1902	1902
Hill, W. Lee, Lexington, No. 4 P. & S., Balto., 1893.	1893	1904
Zimmerman, R. U., Lexington, No. 4 N. C. Med. Coll., 1901.	1901	1904
Julian, C. A., Thomasville Louis. Med. Coll., 1888.	1891	1893
Mock, J. H., Thomasville Med. Coll. Va., 1898.	1898	1904
Peacock, W. J., Thomasville Tulane Univ., 1901.	1901	1905
Anderson, A., Denton	....	1904
York, A. A., Linwood, R. F. D. No. 2 Chatt. Med. Coll., 1907.	1907	1908

DAVIE COUNTY SOCIETY.

President, M. D. Kimbrough, Mocksville Univ. Pa., 1860.	....	1904
Secretary, W. C. Martin, Mocksville P. & S., Balto., 1888.	1888	1904
Rodwell, J. W., Mocksville P. & S., Balto., 1896.	1895	1896
Martin, J. F., Advance, R. F. D.	....	1908
Watkins, T. T., Advance N. C. Med. Coll., 1896.	1896	1896
Byerly, A. B., Cooleemee Univ. Coll. Med., 1896.	1896	1904
Lowery, Robert L., Cooleemee Univ. of Md., 1904.	1896	1904

DUPLIN COUNTY SOCIETY.

President, John M. Faison, Faison Univ. Va., 1885.	1885	1885
Secretary, B. R. Graham, Wallace Univ. Va., 1895.	1895	1899
Hatcher, T. R., Rose Hill	....	....
Ferrell, J. A., Kenansville Univ. N. C., 1902.	1907	1908

Members and Address.	*Licensed.*	*Joined State Society.*
Williams, J. M., Warsaw Univ. Md., 1902.	1902	1902
Lane, John L., Warsaw N. C. Med. Coll., 1906.	1906	1906
Landen, J. F., Chinquapin Univ. Coll. Med., 1905.	1905	1907
Carroll, J. W., Wallace Univ. Md., 1903.	1903	1903
Carr, R. L., Magnolia Balto. Med. Coll., 1907.	1908	1908
Kennedy, G. W., Beulaville	....	1909

DURHAM COUNTY SOCIETY.

President, A. C. Jordan, Durham Coll. P. & S., Balto., 1881.	1885	1904
Secretary, C. A. Woodard, Durham Univ. Va., 1904.	1904	1907
Cheatham, Arch., Durham Univ. Md., 1888.	1888	1888
Adams, C. A., Durham Coll. P. & S., Balto., 1892.	1892	1905
Boddie, N. P., Durham Coll. P. & S., Balto., 1883.	1883	1883
Bowling, E. H., Durham Coll. P. & S., Balto., 1891.	1890	1908
Brooks, B. U., Durham Univ. Md., 1905.	1905	1908
Felts, R. L., Durham Univ. Md. 1898.	1899	1908
Graham, Joseph, Durham Univ. Pa., 1901.	1902	1906
Graham, W. A., Durham Univ. Pa., 1899.	1901	1901
Hicks, William N., Durham Med. Coll. Va., 1864.	1885	1901
Hicks, C. S., Durham Univ. Md., 1904.	1904	1904
Holloway, R. L., West Durham Med. Coll. Va., 1893.	1893	1904
Johnson, N. M., Durham Wash. Univ. Md., 1876.	1879	1904
Manning, J. M., Durham Bellevue Med. Coll., 1882.	1884	1891
Mann, T. A., Durham Univ. Md., 1903.	1903	1903
Moore, R. A., Durham Univ. Md., 1891.	1897	1893

Members and Address.	*Licensed.*	*Joined State Society.*
O'Kelly, J. M., Durham Ky. School Med., 1877.	1884	1883
Olive, W. W., Durham Univ. Md., 1906.	1907	1908
Ross, George H., East Durham Univ. Tenn., 1899.	1899	1904
Teague, R. J., Durham Univ. Md., 1890.	1890	1898
Ward, M. P., Gorman	....	1904
Bitting, N. D., Durham Jeff. Med. Coll., 1907.	1907	1907
Maynard, J. D., Rougemont Univ. N. C., 1908.	1908	1908
Nichols, R. E., Gorman Med. Coll. Va., 1890.	1890	....

EDGECOMBE COUNTY SOCIETY.

President, J. J. Phillips, Tarboro P. & S., N. Y., 1894.	1905	1905
Secretary, S. N. Harrell, Tarboro Univ. Md., 1897.	1907	1904
Shubert, S. H., Pinetop	....	1909
Staton, L. L., Tarboro Univ. N. Y., 1870.	1870	1900
Baker, J. M., Tarboro Univ. Md., 1879.	1879	1879
Thigpen, W. J., Tarboro Jeff. Med. Coll., 1900.	1900	1901
Mercer, W. P., Elm City Univ. N. Y., 1879.	1879	1904
Bass, S. P., Tarboro Univ. Va., 1906.	1907	1908
Speight, J. P., Whitakers, R. F. D. Jeff. Med. Coll., 1905.	1905	1908
Walton, C. B., Macclesfield Univ. Md., 1893.	1893	1907

FORSYTH COUNTY SOCIETY.

President, R. D. Jewett, Winston-Salem Univ. Va., 1888.	1890	1890
Secretary, E. P. Gray, Winston-Salem Johns Hopkins Med. Sch., 1906.	1907	1908
Dalton, D. N., Winston-Salem Univ. N. Y., 1881.	1885	1886
Summers, C. L., Winston-Salem Univ. Md., 1887.	1891	1896
Fearrington, J. P., Winston-Salem Univ. Md., 1887.	1887	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Spencer, W. O., Winston-Salem Jefferson Med., 1891.	1891	1894
Shaffner, J. F., Jr., Winston-Salem Univ. Va., 1899.	1900	1903
Bynum, John, Winston-Salem Univ. N. Y., 1892.	1892	1896
Kapp, H. H., Winston-Salem Jeff. Med. Coll., 1901.	1901	1904
Pfohl, S. F., Winston-Salem Univ. Pa., 1894.	1898	1898
Bahnson, H. T., Winston-Salem Univ. Pa., 1867.	1869	1869
Lott, H. S., Winston-Salem Univ. Ga., 1884.	1888	1888
Wright, J. T., Winston-Salem P. & S., Balto., 1892.	1892	1904
Spainhour, E. H., Winston-Salem Balto. Med. Coll., 1898.	1898	1898
Davis, A. P., Winston-Salem Ky. Sch. Med., 1894; Geo. Wash. Univ., 1906.	1896	1904
Strickland, E. F., Bethania Univ. N. Y., 1887.	1887	1903
Bynum, Wade H., Germanton Univ. Coll. Med., Va., 1900.	1900	1900
Linville, A. Y., Winston-Salem Univ. N. Y., 1889.	1889	1896
Williams, J. D., Lewisville Vanderbilt, 1898.	1898	1898
Lockett, E. A., Winston-Salem Univ. Pa., 1902.	1904	1904
Copple, T. M., Winston-Salem Univ. Md., 1900.	1899	1905
Davis, J. W., Vienna Med. Coll. Va., 1903.	1903	1905
Dalton, W. N., Winston-Salem	....	....
Justice, J. T., Kernersville N. C. Med. Coll., 1904.	1904	....
Carlton, R. L., Kernersville Univ. Md., 1906.	1906	....
Flynt, S. S., Rural Hall P. & S., Balto., 1889.	1890	1906
Pepper, J. K., Winston-Salem Coll. P. & S., Balto., 1907.	1908	1908
Hammock, J. C., Walkertown Coll. P. & S., Balto., 1905.	1905	1908
Flippin, J. M., Winston-Salem Balto. Med., 1898.	1898	1898

FRANKLIN COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, R. P. Floyd, Louisburg, R. F. D. No. 1 S. C. Med. Coll., 1878.	....	1904
Secretary, H. A. Newell, Louisburg P. & S., Balto., 1906.	1906	1906
Malone, J. E., Louisburg Bellevue Med., 1875.	....	1904
Burt, S. P., Louisburg P. & S., Balto., 1896.	1896	1904
Williams, J. B., Alert, R. F. D. 1 Balto. Med. Coll., 1895.	1905	....
Yarborough, R. F., Louisburg Columbia Univ., D. C., 1898.	1899	1899
Bobbitt, E. H., Louisburg, R. F. D. No. 4 Univ. Md., 1883.	1885	1908
Henderson, R. B., Franklinton Univ. Md., 1887.	1887	1904
Harris, J. H., Franklinton Bellevue Med., 1887.	1887	1904

GASTON COUNTY SOCIETY.

President, T. C. Quickel, Stanley Tulane Univ., 1899.	1899	1904
Secretary, McT. G. Anders, Gastonia Md. Med. Coll., 1901.	1902	1902
Glenn, H. F., Gastonia P. & S., Atlanta, 1900.	1900	1904
Adams, C. E., Gastonia Univ. Md., 1878.	1885	1904
Davis, W. W., Belmont Ky. School Med., 1875.	....	1904
Eddleman, H. M., Gastonia Ky. School Med., 1886.	....	1904
Garren, R. H., Bessemer Univ. of Nashville, 1900.	1901	1904
Garrison, D. A., Bessemer City Louisville Med. Coll., 1896.	1896	1899
Hunter, M. C., Stanley P. & S., Balto., 1882.	1882	1904
Jenkins, J. H., Dallas Ky. School Med., 1888.	1888	1904
McLain, Charles E., Gastonia N. C. Med. Coll., 1903.	1904	1905
Patrick, G. R., Lowell Univ. Md., 1879.	....	1904
Reid, R. M., Gastonia Univ. N. Y., 1890.	1890	1903
Reid, Jas. W., Lowell	....	1909

Members and Address.	*Licensed.*	*Joined State Society.*
Robinson, Frank, Lowell Louisville Med. Coll., 1878.	1881	1904
Sloan, J. M., Gastonia Louisville Med. Coll., 1891.	1891	1904
Wilkins, S. A., Dallas Univ. Ky., 1902.	1903	1903
Wilson, F. G., Gastonia Univ. Md., 1896.	1896	1899
McCombs, C. J., Kings Mountain N. C. Med. Coll., 1905.	1905	1908
Rhyne, R. E., Mt. Holly N. C. Med., 1907.	1907	1908
Anderson, James A., McAdenville Augusta Med. College.	....	....
Glenn, L. N., Gastonia	....	1904
McCoy, T. M., Mountain Island	....	1908
Rowe, H. E., Bessemer City	....	1904
Stewart, J. J., Mt. Holly	....	1909
Stovall, Arnold, Gastonia Medico-Chi. Pa., 1904.	1907	1909
Taylor, George, McAdenville	....	1909

GREENE COUNTY SOCIETY.

President, Albert West, Walstonburg Cincinnati Med. Coll., 1887.	....	1904
Secretary, G. C. Edwards, Hookerton Bellevue, N. Y., 1883.	1883	1883
Murphy, W. B., Snow Hill Univ. Med. Coll., Va., 1903.	1903	1905
Harper, J. H., Snow Hill Jeff. Med. Coll., 1906.	1906	1906
Whittington, W. W., Snow Hill Louisville Med. Coll., 1895.	1895	1897
Stamey, E. L., Hookerton Atlanta Med. Coll., 1895.	1895	1904

GRANVILLE COUNTY SOCIETY.

President, S. D. Booth, Oxford 1 Course Med. Coll. Va., 1867.	1885	1885
Secretary, Benj. K. Hays, Oxford Univ. Coll. Med. Va., 1894.	1894	1896
Taylor, W. L. Stovall	....	1909
Coggeshall, G. A., Oxford Bellevue Med. Coll., 1879.	1879	1894
Meadows, E. B., Oxford, R. F. D. No. 1 Univ. Coll. Med., 1901.	1901	1901

Members and Address.	*Licensed.*	*Joined State Society.*
Morris, J. A., Oxford, R. F. D. No. 2 Vanderbilt Univ., 1893.	1893	1899
Sanderford, J. F., Creedmoor P. & S., Balto., 1890.	1890	1891
Hardee, P. R., Stem P. & S., Balto., 1885.	1885	1906
Sikes, G. T., Grissom Univ. Md., 1884.	1884	1884

GUILFORD COUNTY SOCIETY.

President, W. P. Beal, Greensboro Jeff. Med., 1879.	1879	1879
Secretary, J. P. Jarboe, Greensboro Georgetown, 1905.	1906	1907
Ashworth, W. C., Greensboro P. & S., Balto., 1892.	1892	....
Burleyson, D. N., Greensboro Univ. Md., 1891.	1891	....
Dees, R. E., Greensboro Univ. Md., 1906.	1907	....
Ross, G. F., Greensboro Univ. Pa., 1907.	1908	....
Williams, J. R., Greensboro Univ. Mich., 1903.	1904	1904
Harrison, E., Greensboro Univ. Coll. Med., 1896.	1900	1900
Armfield, D. A., Jamestown Jeff. Med. Coll., 1861.	1889	1904
Banner, C. W., Greensboro Univ. Med., 1899.	1899	1901
Battle, J. T. J., Greensboro P. & S., Balto., 1884.	1884	1889
Brooks, J. E., Greensboro Univ. Coll. Med., Va., 1897.	1897	1904
Brooks, Z. T., Greensboro Jefferson, 1868.	....	1901
Boyles, J. H., Greensboro P. & S., Balto., 1903.	1903	1904
Bowman, H. P., Greensboro Univ. of Tenn., 1894.	1894	1904
Burrus, J. T., High Point Grant Univ., 1898.	1897	1898
Coble, W. A., Hartshorn Jeff. Med. Coll., 1889.	1889	1907
Davis, W. C., Summerfield Univ. Balto., 1896.	1889	1904
Dees, R. O., Greensboro Univ. of Md., 1906.	1907	1908

Members and Address.	*Licensed.*	*Joined State Society.*
Dick, J. V., Gibsonville..... Univ. of N. C., 1907.	1907	1908
Dodson, H. H., Greensboro..... Med. Coll. of Va., 1882.	1885	1886
Duncan, G. F., High Point..... Balto. Univ. S. of Med., 1902.	1898	1907
Fortune, A. F., Greensboro..... Univ. Coll. Med., 1900.	1900	1904
Foscue, J. E., Jamestown..... Univ. of Md., 1903.	1903	1907
Fox, M. F., Guilford College..... P. & S., Balto., 1881.	1885	1885
Gilmer, C. S., Greensboro, R. F. D..... Univ. N. Y., 1891.	1891	1894
Glasscock, J. H., Greensboro..... Woman's Med. Coll., Balto., 1896.	1896	1898
Gordon, J. R., Jamestown..... P. & S., Balto., 1891.	1896	1894
Gove, A. M., Greensboro..... Woman's Med. Coll., N. Y., 1891.	1894	1905
Gray, C., Pleasant Garden.....	....	1904
Grayson, C. S., High Point..... Geo. Wash. Univ., 1906.	1907	1908
Hilton, J. J., Greensboro..... Univ. Md., 1886.	1889	1904
Holt, W. T., McLeansville..... Univ. Tenn., 1890.	....	1894
Jones, J. W., Brown Summit..... Mo. Med. Coll., 1875.	1889	1904
Jones, W. M., High Point..... Univ. Md., 1903.	1905	1906
Jordan, G. E., Gibsonville..... P. & S., Balto., 1891.	1891	1904
Kernodle, G. W., Greensboro, R. F. D..... P. & S., Balto., 1886.	1886	1905
Knight, W. P., Greensboro, R. F. D..... Balto. Med. Coll., 1898.	1898	1898
Ledbetter, A. E., Greensboro..... Univ. Md., 1888.	1888	1904
Little, T. R., Greensboro..... Univ. Pa., 1900.	1903	1903
Logan, J. E., Greensboro..... Jeff. Med. Coll., 1905.	1889	1905
Long, J. W., Greensboro..... Vanderbilt Univ., 1883.	1884	1884
McAnally, W. J., High Point..... Balto. Med. Coll., 1897.	1896	1899
Meadows, W. J., Greensboro..... Med. Coll. Ala., 1894.	1899	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Michaux, E. R., Greensboro Univ. N. Y., 1889.	1889	1904
Miles, M. S., Greensboro Wom. Med., Cin., O., 1898.	1904	1905
Moseley, C. W., Greensboro Balto. Med., 1893.	1893	1896
Reaves, W. P., Greensboro Univ. of So., 1903.	1905	1907
Reitzel, C. E., High Point P. & S., Ga.	1902	1902
Reitzel, J. R., High Point Univ. Tenn., 1892.	1895	1896
Richardson, W. J., Greensboro Jeff. Med. Coll., 1889.	1889	1904
Roberson, Charles, Greensboro Long Is. Med. Coll., 1897.	1897	1901
Stanton, D. A., High Point Vanderbilt Univ., 1887.	1887	1891
Tankersley, J. W., Greensboro Jeff. Med. Coll. 1906.	1906	1907
Turner, J. A., High Point Louisv. Med. Coll., 1886.	1889	1891
Turner, J. P., Greensboro Univ. Md., 1896.	1897	1904
Wells, J. M., Pleasant Garden Univ. of N. C., 1905.	1905	1907
Whittaker, A. C., Julian Univ. Tenn., 1903.	1903	1908
Williams, J. A., Greensboro Univ. Va., 1898.	1898	1898
Wilson, A. R., Greensboro Jeff. Med. Coll., 1882.	1882	1882
Rieves, J. T., Greensboro Louisv. Med. Coll., 1891.	1892	1894
Paddison, J. R., Oak Ridge Univ. Md., 1902.	1902	1904
Norman, G. W., Pomona Balto Med. Coll., 1896.	1896	1908
Williams, B. B., Greensboro Univ. Md., 1883.	1886	1908

HARNETT COUNTY SOCIETY.

President, William P. Holt, Duke Jeff. Med. Coll., 1895.	1895	1901
Secretary, H. H. Utley, Coats Balto. Med. Coll., 1906.	1906	1907
Moore, F. T., Benson P. & S., Balto., 1885.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Lee, S. P. J., Dunn Md. Med. Coll., 1904.	1904	1905
Highsmith, Charles, Dunn Balto. Med., 1898.	1898	1898
Sexton, C. H., Dunn Univ. Md., 1890.	1890	1904
Denning, O. L., Dunn Jeff. Med. Coll., 1889.	1897	1904
Hudson, W. L., Dunn Ky. School Med., 1876.	1883	1894
Hicks, I. F., Dunn N. C. Med., 1902.	1902	1904
Boyles, A. C., Duke Univ. Md.	1904	1908
McKay, J. F., Buie's Creek S. C. Med. Coll., 1884.	1885	1904
Halford, J. W., Chalybeate Springs Columbian Univ., Washington, D. C., 1904.	1905	1906
Arnold, L. J., Lillington N. C. Med. Coll., 1905.	1905	1906
Melvin, W. C., Linden Univ. Coll. Med., Va., 1900.	1900	1905
Young, C. R., Angier	....	....
Smith, F., Linden S. C. Med. Coll., 1868.	....	1905
McLean, J. W., Godwin N. C. Med., 1902.	1902	1902
Rowland, W. H., Benson Non-graduate.	....	1904
Taylor, W. I., Dunn	....	....

HAYWOOD COUNTY SOCIETY.

President, R. L. Allen, Waynesville Univ. Md., 1885.	1885	1899
Secretary, J. Howell Way, Waynesville Vanderbilt Univ., 1886.	1885	1886
Able, J. F., Waynesville Univ. Balto., 1892.	1893	1899
Davis, F. M., Clyde Vanderbilt Univ., 1894.	1894	1904
McCracken, J. R., Waynesville N. C. Med., 1902.	1902	1903
Mease, J. H., Canton Vanderbilt Univ., 1893.	1893	1894
Greenwood, B. H., Waynesville Balto. Med., 1893.	1894	1906
Graham, W. A., Crab Tree, R. F. D. Vanderbilt Univ., 1 Co. Registered on oath, 1906.	....	....
Caroway, Jas. F., Canton Med. Coll. S. C., 1900.	1905	1906

Members and Address.	*Licensed.*	*Joined State Society.*
Rich, John Calvin, Dellwood Univ. of Nashville, 1908.	1908	1908
Stringfield, Thomas, Waynesville Vanderbilt Univ., 1898.	1898	1899
Stringfield, S. L., Waynesville Jeff. Med. Coll., 1905.	1905	1906
Willis, A. P., Canton Univ. N. C., 1905.	1905	1906
Wilson, J. E., Sonoma 1 Co. Louisv. Med. Coll., 1876.	....	1903
Hyatt, Fred. C., Canton Jeff. Med. Coll., 1907.	1907	1907
Rogers, McLean, Geary, Okla P. & S., Atlanta, 1902.	1902	1905
Moore, J. E., Canton Tenn. Med., 1899.	1898	1899
Kirkpatrick, Wm. L., Pacolet, S. C Vanderbilt Univ., 1894.	1894	1895
McFayden, H. L., Waynesville Univ. N. Y., 1876.	....	1904

HENDERSON-POLK COUNTY SOCIETY.

President, W. B. W. Howe, Hendersonville Med. Coll. of S. C., 1906.	1907	1908
Secretary, Guy E. Dixon, Hendersonville St. Louis Coll. of P. & S., 1903.	1903	1903
Allen, T. A., Hendersonville S. C. Med. Coll.	....	1904
Brown, J. Steven, Hendersonville Northwestern Univ., 1893.	1894	1895
Egerton, J. L., Hendersonville Univ. Md., 1877.	....	1890
Drafts, A. B., Hendersonville Univ. Va., 1896.	1899	1903
Harper, H., Saluda Univ. Nashville, 1908.	1908	1909
Kirk, Wm. R., Hendersonville Central Univ. of Ky., 1890.	1901	1903
Waldrop, J. G., Hendersonville P. & S., Balto., 1876.	....	1891
Grady, Earle, Tryon Univ. Md., 1894.	1895	1899
Greenwood, S. E., Fletcher Tenn. Med. Coll., 1902.	1903	1904
Russell, L. P., Fletcher Univ. Nashville, 1901.	1902	1903
Salley, E. M., Saluda Univ. Md., 1905.	1905	1906
Guerard, A. R., Flat Rock Bellevue Med. Coll., 1895.	1902	1905

HERTFORD COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, C. F. Griffin, Winton P. & S., Balto., 1893.	1893	1900
Secretary, A. W. Green, Ahoskie Univ. Coll. Med., Va., 1904.	1904	1905
Pollard, W. B., Winton P. & S., Balto., 1893.	1893	1905
Freeman, W. G., Murfreesboro Univ. Pa., 1861.	....	1904
Burbage, T. J., Como Memphis Hosp. Coll. Med., 1882.	....	1905
Gary, R. H., Murfreesboro P. & S., Balto., 1881.	....	1904
Powell, Jesse L., Harrellsville P. & S., Balto., 1907.	1908	1909
Mitchell, J. H., Ahoskie P. & S., Balto., 1879.	....	1904
Mitchell, Paul, Ahoskie Univ. Coll. Med., Va., 1907.	1907	1908
Harrell, Geo. N., Murfreesboro Univ. Coll. Med., Va., 1907.	1907	1907

HYDE COUNTY SOCIETY.

President, E. H. Jones, Swan Quarter, R. F. D. Washington Univ., 1872.	....	....
Secretary, W. L. Swindell, Scranton Balto. Med. Coll., 1908.	....	....
Jones, W. E., Englehard Sewanee, 1904.	....	....
Windley, R. E., Lake Landing Univ. Md., 1903.	1904	1907
Mann, J. A., Fairfield Univ. N. Y. City, 1872.	....	....
Harris, A. G., Fairfield Univ. of South, 1905.	1907	1908
Mann, J. E., Lake Landing Univ. Md., 1907.	1908	1908

IREDELL-ALEXANDER COUNTY SOCIETY.

President, Thos. E. Anderson, Statesville Jeff. Med. Coll., 1878.	1879	1879
Secretary, J. E. McLaughlin, Statesville Univ. Md., 1886.	1886	1896
Adams, M. R., Statesville Univ. Md., 1878.	1884	1884
Bell, A. E., Mooresville Univ. Md., 1889.	1897	1904
Cloninger, L. V., New Stirling N. C. Med. Coll., 1901.	1901	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Hall, E. A., Statesville, R. F. D. No. 4 Univ. of Md., 1868.	....	1904
Jurney, P. C., Turnersburg Med. Coll. Va., 1901.	1901	1904
Kluttz, E. E., Troutman Med. Coll. Va., 1884.	....	1896
King, J. E., Statesville, R. F. D. No. 5 Jeff. Med. Coll., 1868.	....	1904
Long, H. F., Statesville Univ. Md., 1892.	1892	1899
Moore, N. G., Mooresville Jeff. Med. Coll., 1891.	1891	1904
Moore, J. T., Mooresville, R. F. D. No. 2 N. C. Med., 1898.	1898	1905
Nicholson, W. G., Harmony Louisv. Med. Coll., 1881.	....	1904
Burns, A. B., Statesville	....	....
Stevenson, S. W., Mooresville Wash. Univ., Md., 1873.	1879	1904
Yount, E. M., Statesville N. C. Med. Coll., 1902.	1902	1902
Houck, Albert, Statesville P. & S., Balto., 1884.	1891	1893
Sharpe, F. L., Statesville Univ. Coll. Med., 1904.	1904	1905
Carpenter, F. A., Mooresville N. C. Med. Coll., 1906.	1906	1907
Campbell, Arch., Statesville Univ. Md., 1899.	1891	1905
Campbell, R. A. (U. S. Navy), Statesville N. C. Med. Coll., 1897.	1897	1908
Hill, W. J., Statesville Univ. Md., 1889.	1891	1908

JOHNSTON COUNTY SOCIETY.

President, J. C. Grady, Kenly P. & S., Balto., 1886.	....	1904
Secretary, G. D. Vick, Selma Jeff. Med. Coll., 1906.	1906	1906
Rose, A. H., Smithfield Jeff. Med. Coll., 1906.	1906	1906
Wharton, L. D., Smithfield Tulane Univ., 1893.	1893	1894
Hooks, Thel, Smithfield Med. Coll. Va., 1901.	1901	1903
Robinson, G. J., Smithfield Jeff. Med. Coll., 1882.	1884	1884

Members and Address.	*Licensed.*	*Joined State Society.*
Mimms, L. A., Smithfield P. & S., Balto., 1888.	1888	1904
Young, J. J., Clayton P. & S., Balto., 1896.	1896	1904
Griffin, J. A., Clayton P. & S., Balto.	....	1905
Hocutt, B. A., Clayton Univ. N. C., 1906.	1906	1907
Stanley, J. H., Four Oaks Univ. N. C., 1904.	1904	1906
Woodard, A. G., Princeton	....	1909
Mayerberg, I. W., Pine Level	....	1906
Person, J. B., Selma Med. Coll. Va., 1897.	1897	1900
Noble, R. J., Selma Ky. School Med., 1875.	1878	1878
Noble, Robt. P., Selma Univ. of N. C., 1907.	1907	1908
Parker, G. E., Benson P. & S., Balto., 1885.	....	1904
Booker, E. N., Clayton, R. F. D Med. Coll. Va., 1887.	1888	....
McLemore, G. A., Clayton, R. F. D Univ. N. C., 1906.	1906	....
Coleman, G. S., Kenly Med. Coll. Va., 1907.	1907	1908

LENOIR COUNTY SOCIETY.

President, C. L. Pridgen, Kinston Jeff. Med. Coll., 1901.	1901	1901
Secretary, A. DeK. Parrott, Kinston Univ. Coll. Med., Va., 1906.	1906	1906
Parrott, W. T., Kinston Tulane Univ., 1899.	1899	1901
Woodley, C. B., Kinston Bellevue Med. Coll., 1886.	1886	1904
Tull, Henry, Kinston Univ. Pa., 1876.	1876	1876
Parrott, J. M., Kinston Tulane Univ., 1895.	1895	1896
Whitaker, F. A., Kinston 1 Co. Univ. Pa., 1875.	....	1907
Whitaker, R. A., Kinston P. & S., Balto., 1885.	1885	1885
Hargrove, W. F., Kinston Univ. Md., 1901.	1901	1901
Wooten, R. W., Kinston Univ. Va., 1870.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Monk, H. G., Trenton..... Med. Coll. Va., 1896.	1896	1904
Hodges, J. M., La Grange..... Bellevue Med. Coll., 1883.	1883	1904
Smithwick, J. W. P., La Grange..... Univ. Md., 1895.	1894	1898
Denny, W. W., Pink Hill (honorary).....	....	....

LINCOLN COUNTY SOCIETY.

President, C. H Hoover, Crouse..... Balto. Med. Coll., 1893.	1903	1904
Secretary, J. B. Wright, Lincolnton..... Univ. Coll. Med., Va., 1899.	1899	1899
Petrie, R. W., Lincolnton..... Univ. Md., 1903.	1903	1903
Crowell, L. A., Lincolnton..... Balto. Med. Coll., 1892.	1892	1898
Costner, G. H., Lincolnton..... Univ. of Md., 1901.	1902	1907
Saine, Jno. W., Lincolnton..... Louisv. Med. Coll., 1891.	1891	1904
Abernathy, H. W., Devon..... Louisv. Med. Coll., 1894.	1894	1898
Thompson, C. D., Lowesville..... Univ. Tenn., 1901.	1901	1904
Jonas, J. F., King's Mountain.....	....	1909
Killian, R. B., Lincolnton.....	....	1909

MACON-CLAY COUNTY SOCIETY.

President, S. H. Lyle, Franklin..... Univ. Nashville, 1881.	1881	1881
Secretary, W. A. Rogers, Franklin..... Univ. Nashville, 1898.	1898	1898
Siler, F. L., Franklin..... Univ. Nashville, 1897.	1898	1908
Lapham, Mary E., Highlands..... Woman's Med. Coll. of Pa., 1900.	1906	1908
Killian, P. B., Hayesville..... P. & S., Atlanta, 1900.	1909	1909

MADISON COUNTY SOCIETY.

President, McDevitt, A. J., Walnut.....	1905	1906
Secretary, J. W. Baird, Mars Hill..... Tenn. Med. Coll., 1901.	1908	....
Weaver, W. J., Marshall..... Jeff. Med. Coll., 1898.	1897	1903

Members and Address.	*Licensed.*	*Joined State Society.*
Burnett, I. E., Mars Hill	1904	1904
Tenn. Med. Coll., 1901.		
English, I. L., English	....	1904
Frisbee, J. T., Lynch	....	1904
Roberts, Frank, Marshall	1892	1902
Jeff. Med. Coll., 1892.		
Robinson, W. F., Mars Hill	1903	1904
Vand. Univ., 1896.		
Tilson, J. C., Marshall	1885	1904
1 Co. P. & S., Balto., 1884-5.		
Woody, S. B., Spring Creek	1898	1898
Vand. Univ., 1892.		
Moore, J. N., Marshall	1904	1909
Univ. N. C., 1904.		
Baird, J. H., Mars Hill	....	1904
Peck, E. J., Hot Springs	....	1907
Vand. Univ., 1879.		

MARTIN COUNTY SOCIETY.

President, J. B. H. Knight, Williamston	1885	1891
P. & S., Balto., 1885.		
Secretary, Wm. E. Warren, Williamston	1893	1894
Non-grad. Univ. N. Y.		
Hassell, U. S., Jamesville	....	....
Smithwick, J. E., Jamesville	1897	1904
Univ. Md., 1897.		
York, H. B., Williamston	1906	1906
Coll. P. & S., Balto., 1906.		
Rhodes, J. S., Williamston	1906	1906
Med. Coll. Va., Richmond, 1906.		
Long, B. L., Hamilton	....	1904
Univ. Md., 1880.		
Fleming, M. I., Hamilton	1906	1906
Jeff. Med., Phila., 1906.		
Hargrove, R. H., Robersonville	1879	1879
Univ. Md., 1877.		
Nelson, R. J., Robersonville	1890	1893
Louisv. Med. Coll., 1890.		
Saunders, Jos. H., Everetts	1905	1906
Univ. Coll. Med., Richmond, 1905.		
Ward, J. E., Robersonville	1904	1904
Univ. Md., 1904.		
Williams, J. W., Everetts	1906	1906
Univ. Md., 1906.		

MECKLENBURG COUNTY SOCIETY.

President, Annie L. Alexander, Charlotte	1885	1885
Woman's Med. Coll. Pa., 1884.		
Secretary, Robt. H. Lafferty, Charlotte	1906	1906
N. C. Med. Coll., 1906.		

Members and Address.	*Licensed.*	*Joined State Society.*
Misenheimer, C. A., Charlotte Univ. N. Y., 1882.	1882	1882
Alexander, J. R., Matthews Univ. Md., 1894.	1894	1898
Austin, J. A., Charlotte Jeff. Med. Coll., 1887.	1887	1887
Austin, Fred., Charlotte N. C. Med., 1907.	1907	1908
Crowell, A. J., Charlotte Univ. Md., 1892.	1892	1894
Costner, T. F., Charlotte Jeff. Med. Coll., 1882.	....	1892
Clifford, J. S., Charlotte Geo. Wash. Univ., Wash., D. C., 1906.	1907	1908
Faison, I. W., Charlotte Bellevue Med. Coll., 1878.	1878	1878
Gibbon, R. L., Charlotte Jeff. Med. Coll., 1892.	1891	1893
Graham, W. A., Charlotte P. & S., N. Y., 1888.	1889	1890
Hawley, F. O., Charlotte Univ. Edinburg, Scot., 1868.	....	1904
Henderson, S. M., Charlotte Univ. Md., 1894.	1894	1904
Hovis, L., Charlotte N. C. Med. Coll., 1904.	1904	1906
Irwin, J. R., Charlotte Univ. of Md., 1879.	1882	1882
Keerans, L. C., Charlotte Univ. Md., 1902.	1906	1906
Knox, John, Pineville, R. F. D	....	1904
King, P. M., Charlotte Univ. and Bellevue, N. Y., 1902.	1902	1904
Long, V. M., Newells N. C. Med. Coll. 1906.	1906	1908
McLaughlin, C. S., Charlotte Univ., 1896.	1903	1903
Munroe, J. P., Charlotte Univ. Va., 1885.	1886	1890
Nisbet, W. O., Charlotte Med. Coll. S. C., 1889.	1889	1899
Pharr, W. W., Charlotte P. & S., Balto., 1881.	1885	1885
Peeler, C. N., Charlotte N. C. Med. Coll., 1906.	1906	1907
Reid, W. K., Charlotte Univ. of N. Y., 1891.	1891	1896

Members and Address.	*Licensed.*	*Joined State Society.*
Russell, E. R., Charlotte Univ. Md., 1895.	1895	1898
Register, E. C., Charlotte Univ. N. Y., 1885.	1885	1887
Walker, C. E., Charlotte Univ. Md., 1891.	1891	1894
Wakefield, W. H., Charlotte Hosp. Coll. Med., Ky., 1890.	1891	1893
Whistnant, A. M., Charlotte P. & S., Balto., 1893.	1893	1894
Witherbee, W. D., Charlotte McGill Univ., 1899.	1905	1905
Wooten, W. H., Davidson N. C. Med. Coll., 1894.	1894	1908
Boyette, E. C., Charlotte	....	....
Hunter, W. M., Charlotte Univ. Md., 1894.	1894	1904
Matheson, J. P., Charlotte	....	....
Nalle, B. C., Charlotte	....	....
Newell, L. B., Charlotte	....	....
Strong, C. M., Charlotte Univ. Md., 1898.	1898	1898
Skinner, L. C., (from Catawba Co.) Davidson	....	....
Simmons, L. O., Charlotte	....	....
Ross, John K., Charlotte Jefferson, 1907.	1907	....
Woodley, W. T., Charlotte	....	....
MacConnell, John Wilson, Davidson Univ. of Md., 1908.	1908	....

MITCHELL COUNTY SOCIETY.

President, V. R. Butt, Bakersville Jeff. Med. Coll., 1871.	....	1907
Peterson, C. A., Spruce Pine N. C. Med. Coll., 1907.	1907	1908
Slagel, F. P., Bakersville	....	1908
Sloop, E. H., Plum Tree N. C. Med. Coll., 1905.	1905	1907
Ewing, J. B., Boonford Western Pa., 1879.	1905	1905
Bradshaw, J. I., Relief Tenn. Med., 1900.	1904	1908
Penland, R. H., Bakersville Non-graduate.	....	....

MONTGOMERY COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, A. F. Thompson, Troy Med. Coll., Ind., 1895.	1895	1904
Secretary, C. Daligny, Troy Military Med. S., Paris, 1878.	....	1906
Bowman, H. E., Biscoe N. C., 1904.	1905	1906
Grantham, W. L., Mt. Gilead N. C. Med. Coll., 1906.	1906	1908
Ingram, C. B., Mt. Gilead Jeff. Med. Coll., Pa., 1886.	1886	1902
Shamburger, J. B., Star Univ. Md., 1890.	1890	1892

McDOWELL COUNTY SOCIETY.

President, B. A. Cheek, Marion Univ. Pa., 1860.	....	1904
Secretary, D. M. McIntosh, Old Fort Med. Coll. Va., 1904.	1907	1908
Justice, M. L., Marion Non-grad. N. C. Med. Coll.	1897	1904
Morphew, M. F., Marion P. & S., Balto., 1883.	....	1893
Justice, G. B., Marion P. & S., Atlanta, 1907.	1907	1908
Kirby, G. S., Marion Univ. Coll. Med., Va., 1897.	1897	1903
Gilbert, W. W., Dysartsville	....	1904
Ashworth, B. L., Marion P. & S., Balto., 1892.	1893	1895

NEW HANOVER COUNTY SOCIETY.

President, J. T. Schonwald, Wilmington Long Island Med., 1879.	1880	1904
Secretary, M. M. Caldwell, Wilmington Jeff. Med. Coll., 1901.	1906	1907
Wood, E. J., Wilmington Univ. Pa., 1902.	1903	1903
Green, T. M., Wilmington Univ. Md., 1901.	1901	1904
Nesbit, Charles T., Wilmington Balto. Med. Coll., 1903.	1907	1908
Harper, Chas. T., Wilmington Univ. Md., 1904.	1893	1904
Hall, Wright, Wilmington Non-grad. P. & S., Balto.	....	1904
Bullock, D. W., Wilmington Univ. Med., 1873.	1875	1875

Members and Address.	*Licensed.*	*Joined State Society.*
Wessell, J. C., Wilmington Univ. Med., 1900.	1900	1900
Borneman, J. H., Wilmington Jeff. Med. Coll., 1903.	1904	1908
Bellamy, R. H., Wilmington (honorary) Univ. N. C., 1905.	1902	1902
Honnett, Harry, Wilmington P. & S., N. Y., 1900.	1901	1904
Akerman, J., Wilmington Johns Hopkins, 1905.	1905	1906
Cranmer, J. B., Wilmington Univ. N. C., 1905.	1905	1906
MacMillan, W. D., Wilmington Univ. Md., 1868.	....	1904
Murphy, J. G., Wilmington Univ. of Louisville, 1903.	1903	1905
Harris, A. H., Wilmington Medico Chi. Coll., Pa., 1893.	1892	1904
Slocum, R. B., Wilmington Johns Hopkins, 1905.	1907	1908
McDonald, A. D. (honorary) Wash. Univ. of Med., 1877.	1877	1877
Thomas, P. J., Wilmington (honorary) Univ. Md., 1902.	1902	1902
Koonce, S. E., Wilmington	....	1909
Bolles, C. P., Wilmington	....	1909
Anders, W. K., Wilmington	....	....
Thomas, Geo. G., Wilmington Univ. Md., 1871.	1871	1871
Bell, C. D., Wilmington Univ. Md., 1883.	....	1904
Bellamy, W. J. H., Wilmington (honorary) Univ. N. Y., 1868.	....	1870

NORTHAMPTON COUNTY SOCIETY.

President, H. W. Lewis, Jackson Univ. N. Y., 1877.	....	1887
Secretary, R. P. Morehead, Lasker P. & S., Balto., 1895.	1895	1900
Ellis, A. J., Garysburg Univ. of Pa., 1858.	....	1904
Bolton, Mahlon, Rich Square Jeff. Med. Coll., 1885.	1885	1885
Joyner, R. W., Woodland	....	1904
Reed, D. H., Conway Columbian Univ., 1901.	1904	1906
Lassiter, Edgar, Rich Square	....	....
Lister, J. L., Jackson	....	....

ONSLOW COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, E. L. Cox, Jacksonville Univ. Med., 1889.	1889	1892
Secretary, C. Thompson, Jacksonville Tulane Univ., 1878.	....	1904

PAMLICO COUNTY SOCIETY.

President, G. S. Atmore, Stonewall Wash. Univ., 1870.	1870	1904
Secretary, C. A. Flowers, Bayboro P. & S., Balto., 1905.	1907	1908
Daniels, O. C., Oriental Med. Coll. Va., 1903.	1903	1904
Dees, D. A., Bayboro Balto. Med. Coll., 1903.	1903	1905
McCotter, S. E., Bayboro Atlanta Med. Coll., 1908.	1908	1909

PERSON COUNTY SOCIETY.

President, R. S. Baynes, Hurdle Mills, R. F. D. No. 2 P. & S., Balto., 1881.	1881	1904
Secretary, W. A. Bradsher, Roxboro Univ. Md., 1904.	1904	1905
Nichols, C. G., Roxboro Non-grad. Bellevue.	1885	1891
Long, W. T., Roxboro Balto. Med. Coll., 1905.	1905	1907
Love, B. E., Roxboro Univ. Md., 1904.	1904	1905
Merritt, J. H., Woodsdale, R. F. D., No. 2 Univ. N. C., 1906.	1907	1908
Schaub, O. P., Roxboro Balto. Med. Coll., 1898.	1898	1898
Swann, J. F., Semora P. & S., Balto., 1898.	1898	1904
Nichols, A. F., Roxboro Univ. N. C., 1908.	....	1908

PASQUOTANK-CAMDEN-DARE COUNTY SOCIETY.

President, I. Fearing, Elizabeth City P. & S., Balto., 1896.	1896	1904
Secretary, C. B. Williams, Elizabeth City Univ. Coll. Med., Va., 1903.	1903	1906
Griggs, John B., Elizabeth City Univ. Md., 1892.	1892	1904
Fearing, Zenas, Elizabeth City Univ. Med. Coll., Va.	1901	1904
Fearing, W. B., Manteo Univ. Md., 1881.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Lumsden, W. J., Elizabeth City Univ. Md., 1869.	....	1888
McMullan, Q., Elizabeth City Univ. Va., 1880.	....	1889
Wood, J. E., Elizabeth City Wash. Univ., Md., 1869.	....	1904
Sawyer, C. W., Elizabeth City Univ. Md., 1886.	....	1904
Aydlette, H. T., Elizabeth City Univ. Va., 1894.	1895	1896
Walker, H. D., Elizabeth City Univ. Md., 1902.	1902	1902
Ferebee, C. G., Belcross Med. Coll. Va., 1903.	1904	1904
Davis, J. J., Buxton Univ. Md., 1891.	1891	1905
Sawyer, W. W., Shiloh Univ. Md., 1903.	1903	1905

PITT COUNTY SOCIETY.

President, J. E. Nobles, Greenville Jeff. Med. Coll., 1899.	1899	1902
Secretary, L. C. Skinner, Greenville Univ. Md., 1901.	1901	1902
Whitfield, W. C., Grifton Univ. Md., 1884.	1884	1884
Hudson, J. H., Greenville, R. F. D. Balto. Med. Coll., 1907.	1907	1908
Frizzelle, M. T., Ayden Univ. Coll. Med., 1907.	1907	1908
Patrick, J. E., Farmville Univ. Coll. Med., 1900.	1900	1900
Joyner, C. C., Farmville Jeff. Med. Coll., 1899.	1899	1904
Basnight, T. G., Stokes Univ. Md., 1904.	1905	1906
Brown, Zeno, Greenville Bellevue Med. Coll., 1883.	1885	1885
Cox, B. T., Winterville Univ. Md., 1888.	1888	1888
Dawson, W. W., Grifton Univ. Md., 1897.	1897	1900
Dixon, Jos., Ayden Med. Coll. Va., 1894.	1893	1895
Fountain, Wm., Greenville Univ. Coll. Med., Va., 1898.	1899	1899
Jones, C. M., Grimesland Univ. Md., 1892.	1892	1895

Members and Address.	*Licensed.*	*Joined State Society.*
Laughinghouse, Chas. O'H., Greenville Univ. Pa., 1893.	1893	1894
Morrill, D. S., Farmville Balto. Med. Coll., 1897.	1897	1904
Ricks, L. E., Shelmerdine Med. Coll. Va., 1896.	1896	1898
Thigpen, G. F., Bethel Univ. Md., 1903.	1903	1904

RANDOLPH COUNTY SOCIETY.

President, F. E. Asbury, Asbury S. C. Med. Coll., 1876.	1885	1896
Secretary, W. J. Moore, Asheboro P. & S., Balto., 1892.	1893	1901
Henley, S. A., Asheboro Attended Jeff. Med. Coll. 1861.	....	1888
Hubbard, C. C., Farmer Jeff. Med. Coll., 1888.	1890	1904
Summer, W. I., Randleman Univ. Tenn., 1893.	1894	1894
Fox, T. I., Franklinsville Vanderbilt, 1894.	1899	1904
Hunter, J. V., Asheboro Univ. Louisville, Ky., 1898.	1898	1904
Welborn, W. R., Coleridge N. C. Med. Coll., 1905.	1908	1908
Myers, R. W., Fullers Grant Univ., 1897.	....	1909
Wilkerson, Chas. E., Worthville Univ. Nashville, 1907.	1908	1908

ROBESON COUNTY SOCIETY.

President, J. D. Croom, Maxton Med. Coll. of S. C., 1876.	....	1887
Secretary, John Knox, Jr., Lumberton Univ. Md., 1906.	1907	1907
McMillan, B. F., Red Springs Univ. Md., 1882.	1884	1884
Croom, A. B., Maxton Univ. Md., 1905.	1905	1906
Brown, J. P., Fairmont Univ. Md., 1883.	....	1904
Currie, D. S., Parkton N. C. Med. Coll., 1906.	1906	1906
Dickson, A. P., Raeford Univ. N. Y., 1878.	....	1906

Members and Address.	*Licensed.*	*Joined State Society.*
Evans, W. E., Rowland Med. Coll. Va., 1894.	1894	1904
Gibson, M. R., Maxton Univ. Md., 1905.	1905	1908
Hodgin, H. H., Red Springs N. C. Med. Coll., 1906.	1906	1906
Kirkpatrick, L. R., Maxton N. C. Med. Coll., 1902.	1902	1902
McKenzie, J. C., Orrum	....	1907
McMillan, J. L., Red Springs Univ. Md., 1881.	1881	1902
McNatt, H. W., Maxton Univ. Md., 1881.	....	1905
McPhaul, W. A., Lumberton Univ. Nashville, 1905.	1905	1906
Norment, R. M., Lumberton Univ. Md., 1893.	1893	1904
Northrup, T. L., St. Paul's Univ. Md., 1897.	1897	1903
Pate, G. M., Rowland Med. Coll. S. C., 1900.	1900	1905
Pope, H. T., Lumberton N. C. Med. Coll., 1894.	1893	1902
Reedy, Howard, Rowland Med. Coll. S. C., 1884.	....	1904
Rozier, B. S., Lumberton Med. Coll. Va., 1855.	....	1904
Rozier, R. G., Lumberton Univ. Md., 1899.	1899	1904
Stamps, Thomas, Lumber Bridge Univ. Louisville, 1888.	1888	1888
Stevens, W. F., Fairmont Tenn. Med. Coll., 1901.	1898	1904
Thompson, N. A., Lumberton Md. Med. Coll., 1895.	1895	1904
Kitchin, Thurman D., Lumberton Md. Med. Coll., 1908.	1908	1908
Smith, J. Mc., Rowland Jeff. Med. Coll., 1908.	1908	1908
McLean, Allen, Bladenboro Univ. of Md., 1908.	1908	1908

ROCKINGHAM COUNTY SOCIETY.

President, J. W. McGehee, Reidsville Univ. Md., 1904.	1904	1905

ROWAN COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, Jeff B. Council, Salisbury P. & S., Balto., 1885.	1885	1904
Secretary, S. A. Dodds, Salisbury	....	1905
Monk, Henry L., Spencer Med. Coll. Va., 1897.	1899	1903
Caldwell, Julius A., Salisbury Johns Hopkins, 1904.	1905	1905
Atkins, Geo. J., China Grove P. & S., Balto., 1894.	1894	1905
Cowan, Robt. Locke, Salisbury	....	....
Gaither, John Burgess, China Grove P. & S., Balto., 1869.	....	1904
Ramseur, Geo. Alex., China Grove Jeff. Med. Coll., 1880.	....	1898
Summerell, Mitchell E., China Grove, R. F. D. Univ. Pa., 1883.	1883	1883
Chenault, Wm. F., Cleveland Univ. Md., 1888.	1888	1891
Poole, Chalmers M., Craven P. & S., Balto., 1880.	1880	1880
Withers, Banks, Enochsville P. & S., N. Y., 1905.	....	1906
Fitzgerald, J. F., Gold Hill Jeff. Med. Coll., 1889.	1889	1906
Peeler, John H., Granite Quarry Univ. Coll. Med., Va., 1899.	1899	1904
Brawley, Robt. V., Salisbury Univ. Coll. Med., Va., 1900.	1900	1904
Crump, Wm. L., Salisbury Jeff. Med. Coll., 1879.	1881	1904
Choate, G. W., Rockwell N. C. Med. Coll., 1909.	1909	1909
Edwards, B. O., Landis Johns Hopkins, 1908.	1808	1904
Monk, G. M., Spencer	....	1904
Dorsett, E. Rose, Salisbury Jeff. Med. Coll., 1869.	....	1904
Foust, Isaac H., Salisbury Vanderbilt Univ., 1899.	1898	1904
Heilig, Vernon G., Salisbury Univ. Md., 1899.	1899	1904
McKenzie, Wm. W., Salisbury Jeff. Med. Coll., 1893.	1893	1894
Sawyer, Chas. J., Windsor P. & S., Balto., 1895.	1895	1897
Stokes, J. Ernest, Salisbury Univ. Md., 1892.	1900	1901

Members and Address.	*Licensed.*	*Joined State Society.*
Trantham, Henry T., Salisbury Univ. N. Y., 1875.	1878	1879
West, Robt. M., Salisbury Med. Coll. Va., 1900.	1900	1904
Whitehead, John, Salisbury Univ. Pa., 1880.	1880	1880
Smoot, Marvin L., Spencer Univ. Coll. Med., Va., 1903.	1903	1904
Young, Jas. W., Spencer Univ. Md., 1898.	1898	1908
Holshauser, A. R., Rockwell	....	....
Bowers, A. H., Gold Hill Univ. Coll. Med., 1906.	....	....
Woodson, C. W., Salisbury Coll. P. & S., N. Y., Columbia Univ., 1904.	1905	1907

RUTHERFORD COUNTY SOCIETY.

President, T. B. Lovelace, Henrietta P. & S., Balto., 1883.	....	1904
Secretary, W. C. Bostic, Forest City N. C. Med. Coll., 1905.	1905	1906
Hicks, Oliver, Caroleen Med. Coll. Pa.	....	1904
Harris, E. B., Rutherfordton P. & S., Balto.	....	1904
Andrews, R. M., Cliffdale Mem. Hosp. Coll., 1904.	1904	1905
Biggs, H. M., Rutherfordton Univ. of Pa., 1897.	1907	1908
Chapman, G. M., Logan's Store Grant Univ., 1904.	1904	1905
Hamrick, T. G., Caroleen P. & S., Balto., 1895.	1895	1904
Hicks, Romeo, Henrietta So. Med. Coll., Ga., 1888.	....	1899
Harrill, L. B., Caroleen Grant Univ., Tenn.	....	1904
Reid, G. P., Forest City Univ. Coll. Med., Va., 1895.	1894	1899
Twitty, T. B., Rutherfordton Univ. N. Y., 1863, 1 year.	....	1904
Twitty, J. C., Rutherfordton Balto. Med., 1892.	1892	1906
Thompson, J. B., Cliffdale P. & S., Balto., 1898.	1898	1904
Thompson, W. A., Rutherfordton P. & S., Balto.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Wiseman, C. B., Henrietta P. & S., Balto., 1902.	1902	1902
Young, G. E., Forest City Non-grad. Univ. Pa., 1859.	1885	1904
Haynes, B. M., Cliffside N. C. Med. Coll., 1905.	1905	1906
Norris, Henry, Rutherfordton Univ. Pa., 1906.	1906	1908
Morse, L. B., Chimney Rock	1908	1908
Rucker, A. A., Rutherfordton Univ. Md., 1908.	1908	1908
Norris, Philip, Rutherfordton Univ. Pa., 1903.	1908	1908
Powell, R. A., Caroleen Univ. Coll. Med., Va., 1907.	1909	1909
Lancaster, B. B., Fingerville, S. C So. Med. Coll., Atlanta, 1889.	1889	1909

SAMPSON COUNTY SOCIETY.

President, Kerr, C. S., Kerr Univ. Md., 1869.	....	1904
Secretary, G. M. Cooper, Clinton Univ. Coll. Med., Va., 1905.	1905	1906
Holmes, F. H., Clinton Univ. Md., 1895.	1895	1896
Stevens, J. A., Clinton Jeff. Med. Coll., 1883.	1883	1883
Hiatt, H. B., Clinton Univ. Md., 1907.	1907	1908
Matthews, J. O., Clinton, R. F. D Univ. Coll. Med., Va., 1897.	1897	1902
Sloan, Henry, Ingold S. C. Med. Coll., 1881.	1885	1902
Crumpler, Paul, Roseboro Univ. Tenn., 1907.	1907	1908
Sikes, G. L., Salemburg Univ. Coll. Med., Va., 1900.	1900	1904
Wilson, R. B., Newton Grove Ky. Sch. Med., 1889.	1890	1904
McLean, R. H., Dunn, R. F. D., No. 6 P. & S., Balto., 1882.	....	1907

SCOTLAND COUNTY SOCIETY.

President, W. T. Pate, Gibson P. & S., Balto., 1885.	1885	1885
Secretary, A. W. Hamer, Laurinburg S. C. Med. Coll., 1858.	1886	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Prince, D. M., Laurinburg S. C. Med. Coll., 1875.	1878	1879
Blue, K. A., Laurinburg Univ. Md., 1889.	1890	1892
Shaw, W. G., Fontcol P. & S., Balto., 1892.	1895	1904
John, Peter, Laurinburg Univ. Md., 1897.	1897	1904
Everington, G. D., Laurinburg N. C. Med. Coll., 1899.	1898	1898
McLean, N. M., Gibson Univ. Md., 1883.	1883	1888
Gibson, J. S., Gibson Univ. Md., 1906.	1906	1906
McLean, Peter, Laurinburg Univ. Md., 1907.	1907	1908

STANLY COUNTY SOCIETY.

President, B. F. Cox, Palmerville Coll. P. & S., Balto., 1886.	1886	1907
Secretary, W. I. Hill, Albemarle Univ. Md., 1897.	1897	1904
Anderson, J. N. Albemarle Univ. Md., 1895.	1895	1904
Whitley, V. A., Albemarle Univ. Md., 1884.	1884	1904
Hartsell, F. E., Big Lick Balto. Med. Coll., 1895.	1895	1905
Hathcock, T. A., Norwood Univ. Md., 1893.	1893	1904
Allen, J. A., New London Univ. Coll. Med., 1901.	1901	1906
Whitley, D. P., Millingport Univ. Md., 1889.	1890	1898
Campbell, J. I., Norwood Undergraduate N. C. Med. Coll.	1898	1904
Tatem, J. F., Albemarle N. C. Med. Coll.	1904	1908

STOKES COUNTY SOCIETY.

President, J. H. Ellington, Sandy Ridge P. & S., Balto., 1872.	....	1904
Secretary, W. V. McCanless, Danbury	....	1904
McCanless, W. L., Danbury Univ. N. Y., 1892.	1893	1904
Hill, L. H., Germanton Jeff. Med. Coll., 1877.	1877	1877

Members and Address.	*Licensed.*	*Joined State Society.*
Fulp, E., Fulp..... Univ. N. Y., 1882.	....	1896
Phillips, M. D., Dalton..... Univ. N. Y., 1881.	1881	1904
Moore, W. B., Smith..... P. & S., Balto., 1893.	1893	1904
Moir, S. A., Francisco..... P. & S., Balto., 1888.	....	1904
Leak, J. J., Dan River..... Univ. Coll. Med. Va., 1901.	....	1904
Smith, J. T., Westfield..... Jeff. Med. Coll., 1899.	1899	1904
Neal, J. W., Meadows..... P. & S., Balto., 1889.	....	1904
Jones, A. G., Walnut Cove..... Univ. N. Y., 1868.	1894	1904

SURRY COUNTY SOCIETY.

President, J. B. Smith, Pilot Mountain..... P. & S., Balto., 1885.	....	1896
Secretary, E. M. Hollingsworth, Mt. Airy..... P. & S., Balto., 1886.	1886	1904
Allred, E. W., Mt. Airy..... Jeff. Med. Coll., 1877.	....	1904
Ashby, T. B., Mt. Airy..... P. & S., Balto., 1885.	1885	1896
Hollingsworth, J. M., Mt. Airy..... P. & S., Balto., 1886.	1886	1904
Hollingsworth, R. E. Mt. Airy..... Univ. Coll. Va., 1898.	1899	1904
Taylor, W. S., Mt. Airy..... Jeff. Med. Coll., 1874.	....	1894
Mebane, W. C., Mt. Airy..... N. C. Med., 1905.	1905	1908
Flippin, R. E. L., Pilot Mountain..... Balto. Med. Coll., 1897.	1897	1901
Woltz, J. L., Pilot Mountain..... So. Med. Coll., Ga., 1897.	1902	1904
Flippin, S. T., Siloam..... N. C. Med. Coll., 1898.	1898	1898
Currie, E. W., Dobson..... N. C., 1907.	1907	1908
Stone, Wm. M., Dobson..... N. C. Med. Coll., 1906.	1906	1907
Lawrence, C. S., Mt. Airy..... Geo. Wash. Univ., 1908.	1908	1908
Reece, J. M., Elkin.....	....	1904
Ring, J. W., Elkin.....	....	....

SWAIN COUNTY SOCIETY.

Members and Address.	*Licensed.*	*Joined State Society.*
President, R. L. Davis, Bryson City So. Med. Coll., Ga., 1891.	....	1903
Secretary, A. M. Bennett, Bryson City Non-grad. Louisv. Med. Coll., 1884.	1885	1899
Bryson, D. R., Bryson City Univ. Md., 1900.	1900	1904
League, J. H., Whittier Non-grad. Jeff. Med. Coll., 1881.	1885	1904
Cooper, J. A., Almond	....	1904
Holt, R. D., Cherokee Med. Coll. Va., 1899.	1899	1904
Brown, V. J., Fontana Tenn. Med., 1905.	1908	1909
Welch, J. E. T., Bushnell	1905	1909

TRANSYLVANIA COUNTY SOCIETY.

Lyday, W. M., Penrose P. & S., Balto., 1885.	1889	1904

UNION COUNTY SOCIETY.

President, J. R. Jerome, Wingate Univ. Md., 1890.	....	1904
Secretary, John W. Neal, Monroe Univ. N. Y., 1884.	1887	1904
Housten, H. C., Waxhaw Univ. Nashville, 1899.	1899	1903
Guin, L. E., Waxhaw N. C. Med., 1907.	1907	1909
Armfield, R., Marshville Med. Coll. Va., 1881.	....	1904
Blair, J. M., Monroe Louisv. Med. Coll., 1887.	....	1898
Dees, W. A., Marshville Univ. Ga., 1891.	1893	1904
Eubanks, J. B., Monroe, R. F. D. Vanderbilt Univ., 1887.	....	1904
Nance, G. B., Monroe Jeff. Med. Coll., 1885.	1885	1904
Price, W. H., Matthews	....	1904
Stevens, S. A., Monroe Univ. Md., 1900.	1898	1904
Stewart, H. D., Monroe Univ. Md., 1898.	1898	1904
Whitley, A. D. N., Unionville Non-grad. Univ. Md.	1897	1904
McCain, W. R., Waxhaw Univ. Md., 1897.	1898	1906

Members and Address.	*Licensed.*	*Joined State Society.*
Ashcraft, J. E., Monroe Univ. N. Y., 1887.	1887	1888
Blair, M. P., Marshville Med. Coll. Va., 1895.	....	1904
Perkins, D. R., Marshville Balto. Med. Coll., 1903.	1906	1906

VANCE COUNTY SOCIETY.

President, John Hill Tucker, Henderson Univ. Va., 1899.	1899	1904
Secretary, B. G. Allen, Henderson Columbia Univ., 1904.	1904	1909
Bass, H. H., Henderson Univ. Coll. Med., Va., 1899.	1899	1900
Fenner, Edwin F., Henderson Univ. Md., 1905.	1906	1907
Harris, F. R., Henderson Univ. Va., 1881.	1882	1883
Pendleton, A. S., Henderson Univ. Pa., 1895.	1898	1899
Gill, R. J., Henderson Univ. Pa., 1867.	1868	1883
McAllister, Wm., Middleburg P. & S., Balto., 1890.	1890	1904
Carstarphen, W. T., Kittrell Jeff. Med. Coll., 1906.	1906	1908

WAKE COUNTY SOCIETY.

President, G. M. Bell, Wakefield P. & S., Balto., 1880.	....	1903
Secretary, W. C. Horton, Raleigh P. & S., Balto., 1897.	1896	1904
Royster, W. I., Raleigh Bellevue Med. Coll., 1869.	1869	1871
Abernethy, C. O., Raleigh Univ. N. C., 1906.	1906	1906
Anderson, Albert, Raleigh Univ. Va., 1888.	1888	1889
Barefoot, J. J., Raleigh Univ. N. C., 1907.	1907	1908
Battle, K. P., Jr., Raleigh Univ. Va., 1881; Bellevue, 1882.	1882	1882
Blalock, N. M., Gulley's Mills P. & S., Balto., 1890.	1890	1904
Boone, W. H., Morrisville N. C. Med. Coll., 1902.	1902	1904
Buffalo, J. S., Garner Balto. Med. Coll., 1900.	1900	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Burt, B. W., Enno P. & S., Balto., 1886.	1886	1904
Caviness, Z. M., Zebulon Univ. N. C., 1903.	1903	1903
Cotton, A. T., Raleigh P. & S., Balto., 1879.	....	1885
Dixon-Carroll, E. Delia, Raleigh Woman's Med., N. Y., 1895.	1900	1900
Ferebee, E. B., Raleigh P. & S., Balto., 1885.	1885	1903
Fowler, M. L., Rolesville P. & S., Balto., 1881.	....	1904
Harris, H. H., Wake Forest Univ. Pa., 1860.	1860	1886
Hayden, Catherine P., Raleigh Univ. Colo., 1894.	1902	1904
Haywood, F. J., Raleigh Bellevue Med. Coll., 1868.	....	1898
Haywood, Hubert, Raleigh Bellevue Med. Coll., 1879.	....	1904
Holding, S. P., Wake Forest Bellevue Med. Coll., 1897.	1897	1904
Jenkins, C. L., Raleigh Univ. N. Y., 1890.	1890	1892
Johnson, R. W., Apex Univ. Tenn., 1900.	1901	1904
Jordan, T. M., Raleigh P. & S., Balto., 1881.	1881	1881
Judd, J. M., Cardenas Balto. Med. Coll., 1897.	1898	1901
Knox, A. W., Raleigh Bellevue Med. Coll., 1874.	1878	1880
Lewis, R. H., Raleigh Univ. Md., 1871.	1877	1877
Marshburn, H. H., Neuse, R. F. D., No. 2 P. & S., Balto., 1876.	....	1904
McCullers, J. J. L., McCullers P. & S., Balto., 1886.	1886	1904
McGeachy, R. S., Raleigh Bellevue Med. Coll., 1894.	1894	1895
McGee, J. W., Sr., Raleigh Univ. Pa., 1860.	1860	1865
McGee, J. W., Jr., Raleigh Bellevue Med. Coll., 1888.	1888	1888
McKee, James, Raleigh Bellevue Med. Coll., 1869.	1869	1870
Moncure, Wm., Raleigh Univ. Pa., 1904.	1905	1906

Members and Address.	*Licensed.*	*Joined State Society.*
Penny, J. A. J., Vanteen Univ. N. Y., 1861.	....	1904
Powers, J. B., Wake Forest Long Island Med. Coll., 1878.	1885	1904
Ray, O. L., Bangor Univ. Coll. Med., Va., 1899.	1899	1904
Rankin, W. S., Wake Forest Univ. Md., 1901.	1901	1901
Rogers, Jas. R., Raleigh P. & S., Balto., 1886.	1886	1904
Royster, H. A., Raleigh Univ. Pa., 1894.	1894	1895
Sexton, J. A., Fuquay Springs Univ. Md., 1873.	1879	1904
Sorrell, L. P., Flint Med. Coll. Va., 1875.	....	1904
Stephens, Ralph S., Raleigh Univ. N. C., 1905.	1905	1906
Thompson, S. W., Falls Med. Coll. Va., 1875.	....	1904
Tucker, H. McKee, Raleigh Univ. Md., 1899.	1899	1899
Templeton, J. M., Cary Balto. Med. Coll., 1882.	1882	1904
Utley, B. S., Holly Springs P. & S., Balto., 1878.	....	1886
Whitaker, Joel, Raleigh Univ. Md., 1900.	1905	1907
Wilkerson, Chas. B., Apex Univ. N. C., 1906.	1906	1907
Young, L. B., Rolesville P. & S., Balto., 1886.	1886	1907
Underhill, H. P., Wendell U. C. Med., Richmond, 1901.	1901	....
McKee, John, Raleigh	1908	1908
Watson, John B., Raleigh	1908	1908
Farthing, L. E., Pittsboro U. N. C., 1906.	1906	1908
Shore, C. A., Raleigh	....	....

WASHINGTON-TYRRELL COUNTY SOCIETY.

President, W. H. Hardison, Creswell Wash. Univ., Balto., Md., 1870.	1871	1904
Secretary, W. H. Ward, Plymouth Univ. Md., 1881.	1886	1900
Hallsey, B. F., Roper Vanderbilt Univ., Nashville, Tenn., 1893.	1894	1900
Hassell, S., Greenville Jeff., 1886.	1886	1909

Members and Address.	*Licensed.*	*Joined State Society.*
Stancell, W. W., Columbia Univ. Coll. Med., 1906.	1906	1909
Disosway, A. W., Plymouth Univ. Md., Balto., 1905.	1905	1908
Hassell, Jas. L., Creswell Coll. P. & S., Balto., 1886.	1889	1904
Spruill, Jos. L., Columbia Univ. of Md., 1895.	1895	1909
Speight, J. W., Roper Ky. School of Med., 1885.	1885	1904

WAYNE COUNTY SOCIETY.

President, R. E. Lee, Goldsboro Univ. Md., 1896.	1896	1900
Secretary, J. Rainey Parker, Goldsboro Univ. Coll. Med., Rich., 1901.	1901	1903
Faison, W. W., Goldsboro Jeff. Med. Coll., 1878.	1883	1904
Kennedy, J. B., Goldsboro, R. F. D. Univ. Nashville, 1870.	....	1904
Exum, Wyatt P., Goldsboro, R. F. D. Med. Coll. Va., 1901.	1902	1904
Kornegay, L. W., Mt. Olive N. C. Med. Coll., 1906.	1906	1906
Person, E. Cooper, Pikeville Med. Coll. Va., 1905.	1905	1908
Robinson, M. E., Goldsboro Wash. Univ., Balto., 1870.	....	1886
Bizzell, T. M., Goldsboro Univ. Md., 1908.	1908	....

WILSON COUNTY SOCIETY.

President, W. H. Anderson, Wilson Univ. Va., 1902.	1905	1905
Secretary, E. T. Dickinson, Wilson Med. Coll. Va., 1895.	1895	1900
Herring, B. S., Wilson Univ. Mich., 1901.	1901	1901
Williams, A. F., Wilson Univ. Md., 1901.	1901	1905
Moore, C. E., Wilson Bellevue Med. Coll., 1875.	1875	1875
Anderson, W. S., Wilson Washington Univ., 1867.	....	1899
Crocker, S. H., Stantonsburg Ky. School Med., 1894.	1899	1899
Lamm, J. W., Lucama Univ. Coll. Med., 1899.	1900	1900

Members and Address.	*Licensed.*	*Joined State Society.*
Moore, E. G., Elm City Univ. Md., 1883.	1890	1890
Harrison, J. S., Elm City Med. Coll. Va., 1903.	1905	1908
Barnes, B. F., Elm City Univ. Md., 1902.	1902	1902
Best, Henry, Wilson Univ. N. C., 1907.	1907	1908
Freeman, H. F., Middlesex 1904.	....	....
Ward, V. A., Wilson Jefferson.	1908	....
Smith, William H., Bailey Univ. Pa.	1906	....
Powell, E. C., Taylor	....	....

WILKES COUNTY SOCIETY.

President, John Q. Myers, North Wilkesboro N. C. Med. Coll., 1904.	1904	1904
Secretary, J. M. Turner, Wilkesboro Univ. Louisv., Ky., 1881.	....	1904
Gilreath, F. H., North Wilkesboro Univ. Nashville, 1898.	1898	1898
Horton, W. P., North Wilkesboro Balto. Med. Coll., 1892.	1896	1904
Duncan, J. E., North Wilkesboro Univ. Coll. Med., Rich., Va., 1907.	1907	1908
Somers, L. P., Osbornville	....	1904
Pegram, R. W. S., Dellaplane	....	....
White, J. W., Wilkesboro Jeff. Med. Coll., Phila., 1889.	1889	1890
Eller, A. J., Reedy Branch P. & S., Balto., 1893.	1895	1904

YADKIN COUNTY SOCIETY.

President, T. W. Shore, Boonville Univ. Richmond, 1898.	1899	1904
Secretary, M. A. Royall, Yadkinville P. & S., Balto., 1885.	....	1904
Harding, T. R., Yadkinville P. & S., Balto., 1885.	1885	1906
Holcomb, C. M., Boonville, R. F. D. 2 P. & S., Balto., 1869.	....	1905
Blackwell, T. L., Boonville Louisv. Med. Coll., 1874.	....	1905
Clingman, J. C., Huntsville P. & S., Balto., 1877.	....	1904

Members and Address.	*Licensed.*	*Joined State Society.*
Leak, W. G., East Bend N. C. Med., 1900.	1900	1904
Russell, S. L., Yadkinville, R. F. D. 2 Univ. Tenn., 1892.	1889	1904
Hutchens, E. M., North Wilkesboro N. C. Med. Coll.	1896	1904
Salmans, H. C., Jonesville N. C. Med. Coll., 1904.	1904	1908

YANCEY COUNTY SOCIETY.

President, J. L. Ray, Burnsville Coll. P. & S., Balto., 1887.	1887	1890
Edwards, C. P., Burnsville Tenn. Med. Coll., 1902.	1903	1903
Robinson, W. B., Burnsville Balto. Med., 1898.	1907	1908
Fairchilds, J. B., Celo	....	....
Peek, W. A., Bee Log	....	....
Morgan, H. C., Higgins	....	....
Gibbs, J. B., Burnsville	....	....

Honorary Fellows, Medical Society of the State of North Carolina

Name.	Address.
H. T. Bahnson	Winston-Salem.
W. W. Lane	Wilmington.
W. J. Love	Wilmington.
James McKee	Raleigh.
W. J. H. Bellamy	Wilmington.
W. I. Royster	Raleigh.
George G. Thomas	Wilmington.
Francis Duffy	New Bern.
F. J. Haywood	Raleigh.
P. A. Barrier	Mount Pleasant.
Geo. W. Long	Graham.
R. H. Speight	Whitakers.
R. J. Noble	Selma.
D. W. Bullock	Wilmington.
L. H. Hill	Germanton.
L. J. Picot	Raleigh.
R. H. Lewis	Raleigh.
J. W. McGee	Raleigh.
I. W. Faison	Charlotte.
C. E. Moore	Wilson.
Henry Tull	Kinston.

Honorary Members, Medical Society of the State of North Carolina

Name.	Address.
L. McL. Tiffany	Baltimore, Md.
W. W. Keen	Philadelphia, Pa.
J. Allison Hodges	Richmond, Va.
R. L. Payne	Norfolk, Va.
W. L. Robinson	Danville, Va.
J. N. McCormack	Bowling Green, Ky.
J. C. Walton	Danville, Va.

June, 1909. Total membership Medical Society of the State of North Carolina including 24 honorary members, 1067. Of the 98 counties of the State the Physicians of 96 counties are organized in county societies in affiliation with and component branches of the State Medical Society.

337 members registered at 1909 session. This number does not include applicants for license, visitors, solicitors or others than enrolled members.

County Fee Bills

A circular letter was sent each county secretary asking for a fee bill. The following counties responded:

ANSON COUNTY.

WADESBORO, N. C., September 7, 1909.

DR. D. A. STANTON, *Secretary*, High Point, N. C.

MY DEAR DOCTOR STANTON:—Your favor of the 3d received to-day. I am exceedingly sorry I haven't a printed fee bill to send you.

Our charges in the city are $1.50 day and $2.00 night calls after 10 p. m. Obstetrical cases (normal), $10.00. Our country calls are 50 cents per mile and $1.00 for prescribing. I am,

Yours very truly, J. M. COVINGTON.

BEAUFORT COUNTY.

At a meeting of Beaufort County Medical Society, May 5, a resolution adopting the following scale of fees was passed:

Each visit in town up to three visits not less than $1.00 per visit.

Night visits, $2.00 per visit.

All calls between hours of 10 p. m. and 8 a. m. be considered night visits.

Consultation fee, $5.00 first visit.

Each visit thereafter, $1.00.

Out-of-town calls, $2.00 first mile.

And for each additional mile, 75 cents.

No prescription fees less than 50 cents.

Office consultation not less than $1.00.

Obstetrical fee not less than $10.00.

And 50c. per mile, except night calls, which shall be $1.00 per mile.

DR. IRA M. HARDY,
Washington, N. C.

CATAWBA COUNTY.

Consultations: Ordinary, 50 cents to $1.00; critical examination and Rx, $1.00 to $5.00.

Day visits: For first two, $1.00 each; for each additional visit after second on same day, 50 cents each. Mileage: For each mile or fraction of mile, 50 cents.

Night visits: From 10 p. m. to 7 a. m., double that of day. Mileage: At night, $1.00 per mile.

Certificates of death, health, disability, etc., $1.00.

Opinion involving legal issues, $5.00 to $25.00.

Insurance examinations: For old line companies, $5.00; fraternal, $2.00; industrial, $2.50.

Vaccination: Single, $1.00; more than one, 50 cents each.

Unusual detention, $2.00 to $10.00.

Post-mortem examinations, $10.00 to $40.00.

Circumcision, $7.50 to $10.00.

Gonorrhea, first Rx, $5.00.

Syphilis, first Rx, $10.00.

Removing foreign bodies from eye, ear, nose and throat, $1 to $10.

Removing ingrowing toe nails, tonsils, polypus, hemorrhoids and small tumors, $5.00 to $25.00.

Reducing hernia taxis, $5.00 to $10.00.

Reducing hernia by operation, $25.00 to $100.00.

Reducing dislocated finger or toe, $2.00 to $5.00.

Reducing dislocated shoulder, elbow, ankle, wrist, $10.00.

Reducing dislocated hip joint, knee joint, $20.00.

Fracture of bones, hand or foot, $3.00 to $5.00.

Fracture of bones, arm, forearm, wrist, collar bone, jaw bone, ribs, $7.50 to $10.00.

Fracture of bones, thigh, leg, $10.00 to $25.00.

Dressing wounds, 50 cents to $1.00.

Amputation of fingers and toes, $5.00 to $10.00.

Amputation of foot, leg, arm, forearm, hand, $20.00 to $30.00.

Amputation of hip joint, $40.00.

Amputation of breast, $25.00 to $50.00.

Labor: Ordinary, $10.00 and mileage. Instrumental, $15.00 to $25.00. Delivery of placenta, $5.00. Delivery twins, $12.50 to $15.00. Visit too late for delivery, mileage only. Ordinary abortion, $5.00 to $10.00. Post-partum hemorrhage or puerperal convulsions, extra, $5.00 to $10.00.

Repairing rupture of perineum immediate, $5.00 to $25.00.

Repairing rupture of perineum secondary, $25.00.

Lacerated cervix, $25.00.

Craniotomy or evisceration, $5.00 to $20.00.

Ordinary vaginal examination, $2.00.

Tampon or uterine application, $2.00.

Curettement, $5.00 to $10.00. Rectal examination, $3.00 to $10.00.

Giving anesthetics, $3.00 to $10.00.

Minor surgical operations without anesthetic, $3.00 to $10.00.

Fitting pessaries truss or supporter, $2.00 to $5.00.

Passing sound or catheter, $2.00 to $5.00.

Assistant gets one-third regular fee.

Anesthetist gets regular fee for anesthesia.

Empyema operation, $10 to $25. Visit to smallpox, $5 and mileage.

Visit to scarlet fever or diphtheria, $3.00.

Giving diphtheria antitoxin, $5.00 to $10.00.

Consultation fee, $2.50 to $5.00. Intubation, $25.00 to $50.00. Tracheotomy, $25.00 to $50.00.

CALDWELL COUNTY.

Ordinary prescription or advice, 50 cents.
Examination and prescription, $1.00 to $2.00.
Town visit in day time, $1.25.
Town visit between 9 p. m. and 7 a. m., $2.00.
Country visit over 1 mile and under 2 miles, $2.00.
Country visit over 2 miles and up to 4 miles, $2.50.
Country visit over 4 miles up to 5 miles, $3.00.
Country visit over 5 miles, 50 cents per mile one way and $1.00.
Country visit at night, double the day rate.
Visit in extremely bad weather, 50 per cent additional.
Consultation visit, 50 cents per mile and $2.00.
Visit to smallpox cases, mileage and $5.00.
Writing certificate of health, burial, etc., $1.00.
Giving opinion involving legal issues, $5.00.
Attendance on court as expert, per day, $5.00.
Examination for life insurance, $5.00.
Vaccination, single, $1.00.
Vaccination for family, each person, 50 cents.
Unusual detention in ordinary practice, per day or night, $5.00.
Post-mortem examination, $10.00 to $25.00.
Ordinary case of labor in town, $10.00.
Ordinary case of labor in country, 50 cents per mile and $10.00.
Extraordinary delay in labor, per day or night, $5.00.
Forceps delivery or turning, additional, $5.00 to $20.00.
Delivery retained placenta, mileage and $5.00.
Delivery twins, additional, $2.50 to $5.00.
Visit when too late for delivery, mileage only.
Ordinary abortion, $5.00 to $10.00.
Puerperal convulsions, additional, $2.00 to $10.00.
Post-partum hemorrhage, additional, $5.00 to $10.00.
Repairing ruptured perineum, $5.00 to $25.00.
Craniotomy or evisceration, $20.00 to $50.00.
Ordinary digital vaginal examination, $1.00.
Ordinary vaginal examination with speculum, $2.00.
Uterine tampon or application, $2.00 to $3.00.
Curettement of womb, $2.00 to $10.00.
Fitting pessary or supporter, $2.00 to $5.00.
Removal of uterine polypus or fibroid, $10.00 to $100.00.
Removal of ovarian tumors, $50.00 to $100.00.
Administering anesthetic for minor operations, $2.00 to $5.00.
Administering anesthetic for major operations, $5.00 to $10.00.
Minor operations without anesthetic, $1.00 to $5.00.
Minor operations with anesthetic, $5.00 to $10.00.
Passing sound or catheter, $1.00 to $3.00.
Circumcision, $7.50 to $10.00.

Removing foreign body, nose, ear, eye, etc., $1.00 to $3.00.

Removing ingrowing nail, tonsils, polypus, hemorrhoids, small tumors, etc., $5.00 to $10.00.

Reducing hernia by taxis, $5.00 to $10.00.

Reducing hernia by operation, $25.00 to $100.00.

Reducing dislocation or hip joint, $10.00 to $20.00.

Reducing other dislocations, $2.00 to $20.00.

Reducing fractures, $2.50 to $20.00.

Sewing incised wounds, $1.00 to $5.00.

Dressing wounds after operations, $1.00 to $3.00.

Amputation hip joint or shoulder, $100.00.

Amputation or thigh, $50.00 to $100.00.

Amputation leg, arm, hand, foot or breast, $25.00 to $50.00.

Operation for appendicitis, $50.00 to $100.00.

Operation for empyema, $10.00 to $25.00.

Operation for ascites, $5.00 to $15.00.

Assistant at operation 10 to 50 per cent of fee.

When surgical cases are out of town, mileage is to be added.

COLUMBUS COUNTY.

The following scale of prices has been adopted by the physicians of Chadbourn, and same will be effective on and after March 1, 1907:

Town of Chadbourn—

Calls 8 o'clock a. m. to 9 o'clock p. m., $1.50.

Calls 9 o'clock p. m. to 8 o'clock a. m., $2.00.

Calls out of town and within two miles of town.

Calls 8 o'clock a. m. to 9 o'clock p. m., $2.00.

Calls 9 o'clock p. m. to 8 o'clock a. m., $3.00.

Mileage—

8 a. m. to 9 p. m., $ .75.

9 p. m. to 8 a. m., 1.00.

Office call, $1.00 to $10.00.

Labor case, normal, $10.00 and mileage.

Labor case, instrumental delivery, $15.00 to $25.00.

Prescription, 50 cents.

S. M. Withers, M.D.
W. F. Smith. M.D.
J. F. Bluke, M.D.

CHEROKEE COUNTY.

At a meeting of Cherokee County Medical Society, July 30th, a resolution adopting the following scale of fees was passed:

For each visit in town, $1.00.

Out-of-town calls, $1.00 and 50c. per mile.

Night calls in town, $1.50.

Night calls out of town, $1.50 and 75 cents per mile.

Obstetrics, $7.50 and mileage as above.

Consultation, first visit $5.00 and $1.00 for each subsequent visit, and mileage, as above.

Prescriptions not less than 50 cents.

Office consultation and Rx, $1.00.

CRAVEN COUNTY.

Day visit in city, $2.00.

Subsequent visit on same day, each $1.00.

Night visit, between the hours 10 p. m. and 7 a. m., $3.00.

Day visit in country, 75c. per mile, plus $2.00 visit fee.

Night visit in country, 1 hour after sunset, $1.50 per mile, plus $2.00 visit fee.

Consultation, first visit, $5.00.

Subsequent visits in consultation, each $2.00.

Office consultation fee, $1.00 to $10.00.

Obstetric case, simple, without any subsequent attention, $15.00.

Obstetric case, including 5 subsequent visits, $25.00.

Instrumental delivery, additional $10.00 to $20.00.

Abortion, miscarriage, placental delivery, each $10.00 to $25.00.

Vaginal or rectal examination, digital and specular, $3.00 to $5.00.

Fracture of radius and ulna, or forearm, $10.00 to $20.00.

Fracture of humerus, or arm, $15.00 to $25.00.

Fracture of clavicle, $15.00 to $25.00.

Fracture of tibia and fibula, or leg, $15.00 to $25.00.

Fracture of femur, or thigh, $25.00 to $50.00.

Dislocations, $5.00 to $50.00.

Subsequent attendance in these cases at the usual rates per visit.

Amputation thigh, $50.00 to $100.00.

Amputation leg, forearm, $35.00 to $50.00.

Amputation toes, fingers, each $5.00 to $10.00.

Catheterization, $2.00 to $5.00.

Vaccination, $1.00.

Reducing hernia, $5.00 to $10.00.

Operation for hernia, $50.00 to $100.00.

Removing tumors, $5.00 to $25.00.

Operation for fistula in ano, $10.00 to $25.00.

Operation for vesico-vaginal fistula, $50.00.

Operation for hemorrhoids, $10.00 to $50.00.

Operation for laceration cervix uteri, $25.00 to $50.00.

Operation for laceration perineum, $25.00 to $50.00.

Curettage, $10.00 to $25.00.

Lithotomy, $50.00 to $100.00.

Laparotomy, $100.00 to $200.00.

Tonsilotomy, per pair, $10.00 to $25.00.

Adenotomy, $10.00 to $25.00.

Anesthetic fee, $5.00.

Urinalysis, $1.00 to $5.00.

Miscroscopic examination of blood or sputum, $2.00 to $5.00.

Other operations to be rated according to their magnitude, consistent with specifications made with other operations.

Subsequent attendance in all these cases at the usual rates per visit.

Visit to James City, $2.50.

Visit to Bridgeton, Brownsville, Graysville, each $3.00.

RESOLUTIONS ADOPTED BY THE CRAVEN COUNTY MEDICAL SOCIETY, THURSDAY, JUNE 14, 1906.

Resolved, first. That no member of this Society shall make any medical examination for life insurance companies, other than fraternal organizations, for a fee less than $5.00, when the examination includes urinalysis, and this fee shall be paid by the company and not any part of it by the agent or any other party.

Resolved, second. That no member of this Society shall enter into any salaried contract with any insurance company, which contract may in any way interfere with the foregoing resolution.

Resolved, third. That any technical evasion by any member, for the purpose of defeating the intentions of the foregoing resolutions, shall be regarded as unethical and it shall be the duty of any member of this Society to report the same to the Board of Censors.

Resolved, fourth. That any member of this Society having been found guilty of violating the above resolutions, shall be debarred from the Society, and no member shall be allowed to consult with him until he shall have been reinstated.

Resolved, fifth. That a copy of these resolutions be sent to the secretaries of the various county Societies in the State of North Carolina.

(Signed) R. S. PENROSE, M. D.,
Vice-President.

FRANCIS DUFFY, M. D.,
President.

CHARLES DUFFY.
G. A. CATON.
R. DUVAL JONES.
N. M. GIBBS.
F. W. HUGHES.
J. F. RHEM.
LEINSTER DUFFY.
N. H. STREET.
JAMES E. PATRICK,
Secretary and Treasurer.

DURHAM COUNTY.

Ordinary day visit, from 7 a. m. to 9 p. m., in East and West Durham and Durham proper, $1.50.

Night visit, from 9 p. m. to 7 a. m., $3.00.

For each additional person prescribed for when more than one is sick in the same family—

Written or 'phone prescription, $1.00.

Office prescription, oral or written, $1.00.

Visits to the country shall be the regular fee, plus mileage.

Visit in country, at night, shall be double the day visit.

Consultation, $3.00.

Consultation at night, $5.00.

In the country, the consultation shall be the regular fee, plus mileage.

Additional visits of consultant shall be the same as attending physician's.

Obstetric cases, uncomplicated, $10.00.

Complicated or instrumental obstetric cases, $15.00.

Speculum examination rectal or vaginal, $2.00.

Introduction of pessary, $2.00.

Dressing wound, at office, first attention, $2.00.

Redressing wound, $1.00.

Chemical examination of urine, by request, $1.00.

Microscopical examination of urine, $2.00.

Examination of chest, $1.00.

Examination of sputum, $2.00.

Gonorrhœa, first visit, in advance, $2.00.

Each subsequent visit, in advance, $1.00.

Administering anesthetic, $5.00.

Adjusting truss, $2.00.

Reducing hernia by taxis, $5.00.

Operation for strangulated hernia, $50.00.

Circumcision, $10.00.

Operation for varicocele, $25.00.

Operation for hemorrhoids, $10.00.

Operation for lacerated perineum, $25.00.

Operation for lacerated cervix, $25.00.

Operation for harelip, $25.00.

Extirpation of tumors, $5.00.

Enucleation of eye, $25.00.

Ligation of an artery, $5.00.

Treatment of lacerated wound of scalp, $2.00.

Reduction of fracture of hip, $10.00.

Reduction of fracture of tibia or fibula, $10.00.

Reduction of fracture of patella, $10.00.

Reduction of fracture of scapula, $10.00.

Reduction of fracture of humerus, $10.00.

Reduction of fracture of forearm (one bone), $5.00.

Reduction of fracture of forearm (both bones), $10.00.

Reduction of fracture of fingers or toes, $3.00.

Reduction of fracture of inferior maxilla, $10.00.

Reduction of fracture of nose, $5.00.
Reduction of fracture of ribs, $5.00.
For the above, each subsequent visit, $1.50.
Reduction of dislocation of knee or ankle, $10.00.
Reduction of dislocated shoulder or elbow, $10.00.
Reduction of dislocated wrist, $10.00.
Reduction of dislocated inf. maxilla, $10.00.
Reduction of dislocated fingers or toes, $3.00.
Amputation of thigh, $50.00.
Amputation of arm or forearm, $25.00.
Amputation of leg or foot, $25.00.
Minor surgery at office, $2.00.
Plaster-paris dressings, $2.00.
Curettement, $10.00.
Excision of tonsils, $5.00.
Administering antitoxin, $2.00.
Bacteriological investigation, $5.00.
Medico legal post-mortem, $25.00.

LEXINGTON.

Day visit in town or until 10 o'clock p. m., $1.00.

Night visit in town from 10 p. m. to sun-up, $2.00.

Medicine extra.

Day visit in country, 3 miles or under, $1.50; 50c. additional for each succeeding mile.

Night visit in country, 3 miles or under, $2.00; 75c. additional for each succeeding mile.

Detention with patient except in obstetrical cases, per hour after first hour, 50 cents.

All night, in addition to mileage $5.00 to $10.00.

All day and night, in addition to mileage $10.00 to $25.00.

Call visit on road, $1.00; every mile or fraction, 50 cents.

Second visit to be charged for from office.

In case of several patients at the same house charge visit for one and each of the others 50 cents.

Ordinary consultation and half mileage, $5.00.

Prescriptions (medicines extra), $1.00.

Written opinion in question of law, $2.00 to $10.00.

Examination for life insurance, $5.00.

Microscopic examination of urine, $5.00.

Post-mortem examination, in case of legal investigation, $10 to $20.

Post-mortem examination, made at request of family or friends, $5.00 to $20.00.

Attendance on natural case of labor in town, $10.00 to $20.00.

Attendance on complicated, protracted or instrumental, labor and in case of twins or triplets, $15.00 to $100.00.

Attendance in case of abortion, $5.00 to $20.00.

Delivery of retained placenta, and mileage after 3 miles, $5.00.

Administration of enema, $2.00 to $5.00.

Administration of chloroform, $5.00 to $10.00.

Pumping stomach, $2.00 to $10.00.

Opening abscess or exploring tumors, $1.00 and upward.

Vaccination of single person, $1.00.

Vaccination of each person thereafter in same family, 50 cents.

Extracting teeth, each, and mileage, 50 cents.

Lancing gums, $1.00.

Plugging posterior nares, and mileage, $2.00 to $5.00.

Application of truss, $1.00 to $5.00.

Reduction of prolapsus ani, $2.00 to $20.00.

Examination per vaginum or anum, $2.00 to $5.00.

Introduction of pessary, $2.00 to $5.00.

Introduction of bougie to explore urethra, $1.00 to $5.00.

Introduction of catheter, $1.00 to $10.00.

Treatment stricture of urethra, first operation, $2.00 to $10.00; each succeeding operation, $1.00 to $5.00.

Treating stricture by operation, $20.00 to $50.00.

Sounding bladder, $5.00 to $30.00.

Examination of urine, $2.00 to $5.00.

Gonorrhea, first examination and prescribing, $5.00 to $10.00; each succeeding prescription, $1.00 to $2.00.

Syphilis, first examination and prescribing, $10.00 to $20.00; each succeeding prescription, $1.00 to $2.00.

Operation of phimosis or paraphimosis, $5.00 to $20.00.

Palliative operation for hydrocele, $5.00 to $10.00.

Radical cure for hydrocele, $10.00 to $50.00.

Operation for fistula in ano or perineo, $20.00 to $100.00.

Operation for hemorrhoids, $10.00 to $100.00.

Operation for imperforate anus or vagina, $5.00 to $50.00.

Reduction of hernia by taxis, $5.00 to $20.00.

Operation for strangulated hernia, $25.00 to $200.00.

Operation for recto or vesico-vaginal fistula, $50.00 to $200.00.

Operation for stone in the bladder, $50.00 to $200.00.

Extracting calculus from urethra, $10.00 to $50.00.

Puncture of bladder, $25.00 to $50.00.

Paracentesis abdominis, $10.00 to $25.00.

Paracentesis thoracis, $10.00 to $50.00.

Operation for empyema, $25.00 to $100.00.

Cæsarean section, $100.00 to $200.00.

Extirpation of uvula, $5.00 to $10.00.

Extirpation of tonsils, $10.00 to $25.00.

Extirpation of mamma, $25.00 to $100.00.
Extirpation of testicle, $25.00 to $100.00.
Extirpation of tumors, $5.00 to $100.00.
Extirpation of polypus uteri, $10.00 to $100.00.
Extirpation of polypus nasi, $10.00 to $50.00.
Extirpation of the eye, $25.00 to $75.00.
Operation for cataract, $25.00 to $100.00.
Removing foreign bodies in eye, $2.00 to $5.00.
Evulsion of nail on finger or toe, $2.00 to $10.00.
Operation of trephine to cranium, $50.00 to $100.00.
Exsection of diseased bone, $5.00 to $100.00.
Removal of upper or lower jaw, or portions of same, $10.00 to $200.00.
Reduction of luxation of great joints, $10.00 to $100.00.
Reduction of luxation of small joints, $5.00 to $25.00.
Setting fractures of large bones, $10.00 to $50.00.
Setting fractures of small bones, $5.00 to $20.00.
Operation for harelip, $20.00 to $50.00.
Operation for club foot, $20.00 to $100.00.
Operation for myotomy or tenotomy, $10.00 to $100.00.
Extracting foreign bodies from pharynx or œsophagus, $5.00 to $50.00.
Amputation of thigh or arm, $50.00 to $100.00.
Amputation of leg or forearm, $25.00 to $75.00.
Amputation through meta carpus or tarsus, $10.00 to $30.00.
Amputation of shoulder or hip joint, $50.00 to $200.00.
Amputation of finger or toe, $5.00 to $20.00.
Amputation of penis, $20.00 to $50.00.
Laryngotomy or tracheotomy, $25.00 to $100.00.
Speculum examination, first, $5.00; each succeeding examination, $2.00.

DAVIE COUNTY.

Mocksville, N. C., September 7, 1909.

Dr. Stanton.

Dear Doctor:—We have no printed fee bill, but have adopted the following fees:

Visit in town, ordinary, $1.00.

Out of town, 50 cents per mile in addition up to 3 miles, over that just 50 cents per mile; night visit, ½ more.

Obstetrics, ordinary, $10.00.

Setting the large limbs, $10.00.

Small ones, $5.00.

Removing limbs, $25.00 and up.

Other minor surgery left to each physician's judgment.

Respectfully, W. C. Martin.

WINSTON-SALEM.

OFFICE PRACTICE.

Prescription at office, without examination, 50c.

Ordinary examination, $1.00.

Chemical examination of urine, $1.00.

Microscopical examination of urine, blood and excreta, $2.00.

Treating of venereal diseases, in advance, $5.00.

Subsequent treatment charged according to circumstances.

Examination of stomach contents, $5.00.

GENERAL PRACTICE.

Every visit in town, $1.00.

Every visit between 11 p. m. and 6 a. m., $2.00.

Every visit in country not over three miles from residence, $1.50.

Every visit in country over three miles from residence, each additional mile 50 cents.

Visit in country after night, double rates.

For each additional patient in same house, 50 cents.

Vaccination at office, 50c.; residence, $1.00, and each additional one 50 cents.

Blood letting or enema, in addition to visit, $1.00.

Examination per anum or vaginum, $2.00.

Consultation visit, $5.00.

Each additional visit with attendant, regular rates.

Post-martem examination (by request), $10.00.

OBSTETRICAL PRACTICE.

Attendance on normal labor with ordinary after attention, $10.00.

Version or application of forceps, extra $5.00.

Delivery of the placenta, $5.00.

Every hour of detention after six hours, 50c.

Vaginal examination, first time, $2.00.

Vaginal examination, each subsequent time, $1.00.

Cases of abortion same as labor.

Attendance on normal labor in country, without after attention, mileage extra, $5.00.

Detention, complication, and after attention (mileage extra), same as in town.

Visits and attention prior to labor regular rates.

GYNECOLOGICAL PRACTICE.

Operation for vesico-vaginal fistula, $25.00.

Operation for retained menstruation, $5.00.

Operation for vaginismus, $10.00.

Division of cervix uteri, $10.00.

Trachelorrhaphy, $20.00.

Perineorrhaphy, $10.00.
Uterine and vaginal applications, $1.00.
Reduction of uterine displacements and introduction of pessary, $1.00.
Extirpation of polypus uteri, $10.00.
Strapping mamma, $1.00.
Amputation mamma, $25.00.
Curettage, $10.00.

SURGICAL PRACTICE.

Reduction of fractures of bones of hands and feet, $1.00.
Each subsequent dressing of fracture, $1.00.
Reduction of fracture of forearm, leg, clavicle or rib, $5.00.
Reduction of fractures of humerus and femur, $10.00.
Reduction of smaller bones and joints, $5.00.
Reduction of larger bones and joints, $50.00.
Operation for artificial joint, $50.00.
Excision of diseased bone, $20.00.
Amputation of leg, arm or thigh, $50.00.
Amputation at shoulder or hip, $50.00.
Amputation of finger, thumb or toe, $5.00.
Amputation of penis, $25.00.
Removal of upper or lower jaw, or portions thereof, $25.00.
Application of trephine, $25.00.
Treatment of fractures of the cranium with or without trephining, $25.
Removal of stone from bladder, $50.00.
Extraction of stone from urethra, $10.00.
Introduction of catheter in ordinary case, $1.00.
Introduction of catheter in case of obstruction, $5.00.
Dilatation of stricture (each time), $1.00.
Introduction of sound or bougie to explore bladder or urethra, $1.00.
Cauterizing urethra, $2.00.
Parancentesis vesicae, $3.00.
Parancentesis abdominis, $5.00.
Parancentesis scroti, $2.00.
Parancentesis thoracis, $10.00.
Operation for hemorrhoids, $5.00.
Operation for radical cure hydrocele, $10.00.
Operation for varicocele, $15.00.
Operation for fistula in ano, $50.00.
Operation for fistula in perineo, $10.00.
Operation for imperforate anus or vagina, $10.00.
Operation for irregular opening of urethra, $10.00.
Operation for phimosis or paraphimosis, $5.00.
Strapping testicle, $1.00.
Castration, $25.00.
Internal or external urethrotomy, $25.00.
Extripation of polypus nasi, $5.00.

Excision of the uvula, $2.00.
Excision of tonsil, $2.00.
Operation for harelip, $20.00.
Operation for cleft palate, $25.00.
Operation for ranula, $2.00.
Division of franum of tongue or penis, $1.00.
Laryngotomy or tracheotomy, $25.00.
Extraction foreign bodies from nose, ear and pharynx, $2.00.
Extraction of foreign bodies from eye, 50c.
Reduction of prolapsus ani, $2.00.
Plugging posterior nares, $2.00.
Extraction of bullets, $2.00.
Introduction of seton or opening abscess, $1.00.
Extirpation of eye, $25.00.
Operation for cataract, $50.00.
Irredectomy, $25.00.
Other operations on eye and its appendages, $5.00.
Operation for aneurism, $25.00.
Removal of nævus, $2.00.
Ligation of arteries, $5.00.
Reduction of hernia by taxis, $2.00.
Operation for strangulated hernia, $25.00.
Extirpation of tumors in dangerous localities, $20.00.
Extirpation of other tumors, $5.00.
Laparotomies, $50.00.
General anesthesia, $5.00.
Local anesthesia, $1.00.
Introduction stomach pump, $5.00.
Dressing a recent wound, $1.00.
Evulsion of nail of finger or toe, $5.00.
Myotomy or tenotomy, $5.00.
Operation for club foot, $25.00.
Dilatation sphincter ani, $5.00.
Dilatation sphincter vesicae, $5.00.
Strapping of leg for chronic ulcer, $1.00.
Intubation, $10.00.

For operations and services not enumerated above, charges will be made at the discretion of the physician.

The above fee bill is founded a just consideration of the important services which physicians are called upon to serve, and is designed to enable the practitioners of Winston-Salem, N. C., to exhibit uniformity in their rates of charges; and it is expected that every member of the profession will in good faith conform to its requirements, whenever the pecuniary circumstances of the patient are such as do not clearly forbid.

In case anyone shall transgress these regulations, he shall be considered beyond the pale of the profession, and no consultation shall be held

with him. If any one shall knowingly consult with such a person he shall be regarded and treated in a similar manner.

FRANKLIN COUNTY.

For each day visit in town, $1.50.
For each night visit in town, $3.00.
For each day visit in country, $1.00 (with 50 cents per mile added).
For each night visit in country, $2.00 (with $1.00 per mile added).
For office prescription, $1.00.
For instrumental examination for diagnosis, $2.00.
For hypodermic or other injection, $1.00.
For opening abscess, $1.00 to $5.00.
For adjusting uterus, $2.00.
For applications to cervix, $2.00.
For introducing pessary, $2.00.
For fitting truss, $2.00.
For vaccination, $1.00.
For introducing catheter, $2.00.
For life insurance examination, $5.00.
For consultation (mileage in addition 50c. night, and $1 day), $5.00.
For administering anesthetic, $5.00.
For dressing lacerated or contused wound, $5.00 to $10.00.
For applying plaster bandage, $5.00 to $10.00.
For reducing simple hernia, $5.00 to $10.00.
For operation strangulated hernia, $20.00 to $100.00.
For reducing luxation shoulder, elbow, wrist or jaws, $5.00 to $10.00.
For reducing luxation knee or ankle, $5.00 to $10.00.
For reducing luxation thigh, $10.00 to $20.00.
For setting jaw or rib, $5.00.
For setting fracture of arm, forearm or leg, $5.00 to $10.00.
For setting fracture of thigh, $20.00.
For amputation of finger or toe, $5.00.
For amputation of arm, forearm, leg or thigh, $25.00.
For trephining, $25.00.
For operation for cataract, $25.00.
For treating gonorrhea or primary syphilis, $10.00 to $50.00.
For treating secondary syphilis, $20.00 to $50.00.
For extirpation tumor, $5.00 to $25.00.
For removing polypus, $5.00 to $10.00.
For operation anal fistula, $5.00 to $10.00.
For operation vesico or recto-vaginal fistula, $50.00.
For delivering placenta, $5.00.
For attention in normal labor, $15.00 to $25.00.
For manual interference, turning, etc., $15.00.
For forceps delivery, $20.00.
For craniotomy, $25.00.

GASTON COUNTY.

GASTONIA, N. C., September 8, 1909.

DR. D. A. STANTON, High Point, N. C.

DEAR DR. STANTON: Yours in re. fee bill received. We have no regulated fee bill, except one and a half fee for night service and $10.00 obstetrics.

Have talked with several physicians in regard to it, and some object to it. However, if we can get up one will send it to you right away.

Yours fraternally, McG. ANDERS,
Sec. Gaston County Med. Society.

HARNETT COUNTY.

For each necessary day visit, $1.00.
For each necessary night visit (after 10 p. m.), $2.00.
For each necessary day visit to country, $1.00 plus 50c. per mile.
For each necessary night visit to country, $2.00 plus $1.00 per mile.
For consultations, $5.00 up.
For life insurance examinations, $5.00.
For ordinary office examinations and prescriptions, $1.00.
For normal obstetrical cases, $10.00.
For cases with use of forceps and anesthetic, $20.00.
For manual interference, $20.00.
For craniotomy, $25.00.
For administering anesthetic in ordinary cases, $5.00.
For reducing simple hernia, $2.50.
For operation on hernia, $25.00 up.
For paracentesis of scrotum, $1.00.
For paracentesis of pleural cavity, $5.00.
For paracentesis of abdomen, $2.50.
For excision of tonsils, $10.00 up.
For excision of nasal or aural polypi, $5.00 up.
For opening subcutaneous abcesses or felons, $1.00 up.
For operation for phimosis or paraphimosis, $10.00 up.
For clipping frænum of tongue, $1.00.
For excision of breast, $25.00 up.
For passing sound in male urethra, each sitting, $1.00.
For operation on anal fistula or hemorrhoids, $15.00 up.

GENERAL SURGERY.

For first visit in minor operation, such as are required for contused, incised or lacerated wounds, burns, scalds, etc., or introduction of a catheter—$2.00. One dollar for each subsequent visit.

For first visit when one or more fingers or toes are amputated; if fractures of the hands or feet are treated; if any dislocation of bones of hands or feet are treated; if any artery below the knee or elbow or

in elbow joint is litigated in open wound; if fracture of one or more ribs is treated—$10.00. One dollar for each subsequent visit.

For first visit for reduction of dislocation of the shoulder, elbow, wrist, knee, ankle or jaw; for treating fractures of scapula, fibula or clavicle, the leg, forearm, arm or jaw; if the above fractures are compound or comminuted an additional charge of 25 per cent or more may be charged —$10.00. One dollar for each subsequent visit.

For reduction of dislocation of the hip joint—$20.00. One dollar for each subsequent visit.

For trephining the skull, for first dressing in fracture of the femur or patella, and for litigation or artery above elbow, or knee joint not in open wound—$25.00. One dollar for each subsequent visit.

For amputation of the thigh at middle or lower third or knee joint, leg, foot, arm, or forearm; the excision of any of the larger joints except the hip joint—$30.00. One dollar for each subsequent visit.

For amputation of the hip or shoulder joint, or if excision of the hip joint is performed; reduction of fractures or dislocations, implies permanent dressings—$50.00. One dollar for each subsequent visit.

P. S.—The fee of $1.00 for subsequent visits implies the distance to be within a mile, otherwise charge regular mileage fees. For special surgery, services or work, the physician will charge what he deems his services worth.

H. H. Utley, *Sec'y and Treas.*,
Benson, N. C.

Wm. P. Holt, *President*,
Duke, N. C.

HAYWOOD COUNTY.

(Adopted at meeting of Society held on October 7, 1889, with later revisions.)

First day visit in town, $2.00 to $3.00.
Subsequent day visit in town, $1.50 to $3.00.
Unusual detention, per hour, $1.00 to $2.00.
Night visit in town, $2.50 to $5.00.
Visits cases poisoning or smallpox, double above fees.
Mileage in day-time, 50c. to $1.00.
Mileage at night, $1.00 to $2.00.
Consultation at office, $1.00 to $10.00.
Visit in consultation, $10.00 to $15.00.
Vaccination, $1.00.
Venesection, $2.00 to $5.00.
Simple or ordinary obstetric cases, $10.00 to $25.00.
Difficult or operative obstetric cases, $20.00 to $50.00.
Administration of anesthetic, $5.00 to $10.00.
Urinalysis, $2.00 to $5.00.
Insurance examination (old line), $5.00.
Insurance examination (fraternal societies), $2.00.
Writing certificate of health, burial, etc., $1.00 to $2.00.

Professional opinion involving legal issues, $10.00 to $50.00.
Post-mortem examination, $15.00 to $50.00.
Bacteriologic examination, $2.00 to $5.00.
First dressing of wounds, $1.00 to $10.00.
Amputation of thigh, $40.00 to $60.00.
Amputation of leg, $30.00 to $50.00.
Amputation of foot, $25.00 to $40.00.
Amputation of toes or fingers, $5.00 to $10.00.
Amputation of arm, $30.00 to $40.00.
Amputation of forearm, $20.00 to $35.00.
Amputation of hand, $15.00 to $25.00.
Ligation of arteries, $15.00 to $50.00.
Reduction of fractures, $5.00 to $25.00.
Reduction of luxations, $5.00 to $25.00.
Intubation, $15.00 to $50.00.
Tracheotomy, $25.00 to $50.00.
Trephining, $50.00 to $100.00.
Extraction of foreign body, $2.00 to $15.00.
Ophthalmoscopic examination, $2.60 to $5.00.
Laryngoscopic examination, $2.50 to $5.00.
Laparotomy, $100.00 to $250.00.
First fee in cases of gonorrhœa, $2.50 to $5.00.
First fee in cases of syphilis, $10.00 to $20.00.
Subsequent consultations in cases of gonorrhœa, $1.00 to $2.00.
Subsequent consultations in cases of syphilis, $2.00 to $5.00.
Removal of tumors, $5.00 to $20.00.
Use of aspirator, $10.00 to $25.00.
Use of stomach pump, $10.00 to $25.00.
Excision of bone, $15.00 to $25.00.
Enucleation of eye, $40.00 to $75.00.
Other operations on eye, $5.00 to $100.00.
Removal of nasal polypi, $5.00 to $20.00.
Removal of tonsils, $10.00 to $25.00.
Reduction of hernia, $5.00 to $10.00.
Operation for hernia, $50.00 to $100.00.
Operation for talipes, $25.00 to $100.00.
Operation for hemorrhoids, $10.00 to $50.00.
Operation for fistula-in-ano, $20.00 to $50.00.
Operation for appendicitis, $100.00 to $250.00.
Catheterization, $2.00 to $5.00.
Castration, $25.00 to $50.00.
Vaginal examination, $2.00 to $5.00.
Operation for stricture, $15.00 to $30.00.
Operation for phimosis and paraphimosis, $10.00 to $25.00.
Operation for chronic pleurisy, $20.00 to $50.00.

Operation for hydrocele, $10.00 to $25.00.
Evacuation of hydrocele, $5.00 to $10.00.
Operations on cervix and perineum, $50.00 to $150.00.

HENDERSON-POLK COUNTY.

Office consultation, $1.00 and up.
Day visits, $1.50 and $2.00 and up.
Night rates double day rates.
Mileage beyond first mile 50c. to $1.00 extra per mile one way.
Simple obstetrical cases $10.00 and up.
Prolonged or abnormal obstetrical cases $15.00 and up.
Delivery of placenta, no further attendance, $5.00 and up.
Obstetrical attendance after third day, regular visit fees.
Insurance examinations, benevolent orders, $2.00 and up.
Insurance examinations, old line companies, $5.00 and up.
Legal opinions, including expert testimony, $10.00 and up.
Special written opinions or advice, $5.00 and up.
Reducing fractures and dislocations of the small bones and joints, $5.00 and up.
Reducing fractures and dislocations of the larger bones and joints, $10.00 and up.
Amputation of finger or toe, $5.00 and up.
Major amputations, $25.00 and up.
Other surgical operations at discretion of surgeon.
Administration of anesthetic, $5.00 to $10.00.
Post-mortems, $10.00 to $100.00.
Sputum examinations, $2.00 and up.
Urinalysis, $1.00 and up.
Other microscopical and biological examinations at the discretion of examiner.

LENOIR COUNTY.

OFFICE PRACTICE.

Ordinary prescription, advice, examination and slight minor work, *e. g.*, opening boils, $1.00 up.
Subsequent calls, $1.00 up.
Close physical examinations, $5.00 up.
Dressing injuries, $2.00 up.
Electricity, ...
Other work at office to be regulated by its character.

GENERAL PRACTICE.

Day visits, $1.50 to $2.00.
Night visits, double fee.
Contagious diseases and quarantinable cases, double fee.

Consultation, $5.00 to $10.00.
Certificates of health, $1.00 to $5.00.
Written opinion, $2.00 up.
Opinion involving legal issues, $10.00 up.
Urinalysis (not microscopic), $1.00 to $5.00.
Clinical microscopy, $2.00 to $15.00.
Vaccinations, $1.00.
Examination and certificate for insanity, $2.50 to $25.00.
Life insurance examinations (all but industrial), $5.00 up.

OBSTETRICS AND GYNECOLOGY.

Natural delivery not to exceed three after visits (city), $15 to $25.
Delivery of placenta alone, $5.00 to $10.00.
Necessary use of forceps, version or twins (extra), $10.00 up.
Placenta previa, $25.00 to $100.00.
Craniotomy or evisceration, $25.00 to $100.00.
Lacerated cervix or perineum, (recent) extra, $10.00 up.
Lacerated cervix or perineum (late), $50.00 to $100.00.
Miscarriage, $10.00 to $25.00.
Uterine curettement (extra), $5.00 to $50.00.
Intra uterine douche, $3.00 to $5.00.
Vaginal and rectal examination, $2.00 to $5.00.
Uterine tampons, etc., $2.00 to $5.00.
Other work to be regulated by its nature, severity, etc.

SURGERY.

Adjusting trusses, $1.00 to $5.00.
Administering anesthetic, $5.00 to $10.00.
Amputation of finger or toe, $5.00 up.
Reduction dislocation, $5.00 up.
Fractures of fingers or toes, $5.00 up.
All other fractures, $10.00 up.
Excision of tonsil, $10.00 up.
Reducing hernia by taxis, $5.00 to $10.00.
Introductions of sounds, catheters, etc., $2.00 to $5.00.
Gonorrhœa (each prescription or visit), $2.00 up.
Chancroid, $10.00 up.
Extracting foreign body from eye, ear, nose or throat, $1.00 to $5.00.
Tapping hydrocele, $1.00 to $5.00.
Phimosis (reduction), $3.00 to $5.00.
Phimosis (circumcision), $10.00 up.
Irrigating bladder, $2.00 to $5.00.
Removing ingrowing nail, $2.00 to $5.00.
Removing needle (superficial) and fish hook, $2.00 up.
Administering diphtheria antitoxin, each extra, $1.00.
Major surgery to be regulated by its nature, extent, etc.
Other minor work to be regulated by its character.
All medicine, apparatus and mileage will be extra to these fees.

COUNTRY PRACTICE.

Day visits, $1.00 for the first mile and 50 cts. for each succeeding mile.

No visits to be less than $2.00.

Night visits, $1.00 for each mile. No visit to be less than $3.00.

Prescription, medicines, apparatus, etc., will be extra to these fees.

Night visits in the city will begin at 9 (nine) o'clock.

Night visits in the country will begin at sundown.

This is the Official Fee Bill adopted by the Lenoir County Medical Association, January 4, 1907. DR. ALBERT D. PARROTT, *Secretary.*

LINCOLN COUNTY.

Ordinary prescription or advice, 25 cents to $1.00.

Examination and prescription, 50 cents to $2.00.

Town visit in day time, $1.00.

Country visit, over one mile and under two miles, $1.50.

Country visit, over two miles and under four, $2.00.

Country visit, over four miles, per mile one way, 50 cents.

Night visits, fifty per cent additional.

Visit in extremely bad weather, fifty per cent additional.

Visit to diphtheria or scarlet fever, double ordinary charge for other visits.

Consultation visit, mileage and $5.00.

Visit to smallpox cases, mileage and $5.00.

Writing certificate (health), 50 cents to $1.00.

Giving opinion involving legal issues, $5.00.

Attendance on court as expert, per day, $5.00 to $10.00.

Insurance examination for old-line company, requiring urinary analysis, $5.00.

Insurance examination for other than old-line companies, $1.00 to $3.00.

Vaccination, 50 cents.

Unusual detention in ordinary practice, per day or night, $5.00.

Post-mortem examination, $10.00 to $25.00.

Ordinary case of labor, $10.00.

Extraordinary delay in labor, per day or night, $5.00.

Forceps delivery or turning, $5.00 to $20.00.

Delivering retained placenta, mileage and $5.00.

Delivering twins, $12.50 to $15.00.

Visit when too late for delivery, mileage only.

Ordinary abortion (simple), $5.00 to $10.00.

Difficult or prolonged abortion, per day or night additional, $5.00.

Puerperal convulsions, additional, $2.00 to $10.00.

Post-partum hemorrhage, additional, $5.00 to $10.00.

Repairing ruptured perineum, $5.00 to $25.00.

Craniotomy or evisceration, $20.00 to $50.00.

Ordinary vaginal examination, $1.00.

Uterine tampon or application, $2.00 to $3.00.
Curettement of womb, post-partum, $5.00 to $10.00.
Curettement in other than post-partum cases, $20.00 to $30.00.
Fitting pessary or supporter, $2.00 to $5.00.
Removal of uterine polypus or fibroid, $10.00 to $100.00.
Removal of ovarian tumors, $50.00 to $100.00.
Administering anesthetic for minor operations, $2.00 to $5.00.
Administering anesthetic for major operations, $5.00 to $10.00.
Minor operations without anesthetic, $1.00 to $5.00.
Minor operations with anesthetic, $5.00 to $10.00.
Passing sound or catheter, $1.00 to $3.00.
Circumcision, $7.50 to $10.00.
Removing foreign body, nose, ear, etc., $1.00 to $3.00.
Removing ingrowing nail, tonsils, polypus, small tumors, etc., $5.00 to $10.00.
Removing hemorrhoids, $25.00.
Reducing hernia by taxis, $5.00 to $10.00.
Reducing hernia by operation, $25.00 to $100.00.
Reducing dislocation of hip joint, $10.00 to $20.00.
Reducing other dislocations, $2.00 to $20.00.
Reducing fractures, $2.50 to $20.00.
Sewing incised wounds, 50 cents to $5.00.
Dressing wounds after operations, 50 cents to $3.00.
Amputation hip joint or shoulder, $100.00.
Amputation of thigh, $50.00 to $100.00.
Amputation leg, arm, hand, foot or breast, $25.00 to $50.00.
Operation for appendicitis, $50.00 to $100.00.
Operation for empyema, $10.00 to $25.00.
Operations for ascites, $5.00 to $15.00.
Assistant at operation, 10 to 50 per cent of fee.
When surgical cases are out of town, mileage is to be added.

MARTIN COUNTY.

WILLIAMSTON, N. C., Oct. 7, 1909.

DEAR DR. STANTON:—Your esteemed favor of 6th to hand and contents carefully noted. In reply will say we have no printed fee bill, as it has been my experience during my twenty years of practice that a majority of the doctors will not stick to it, so, in this county (Martin) we charge now exactly as they did twenty-five years ago, which, of course, is entirely too low considering the cost of living, etc.

Our fees as follows: Mileage in the country, 50 cents per mile; in other words, we charge $2.50 to go out of town if it is one mile or five, and above five miles it is 50 cents per mile—medicine included. Town visits, without medicine, $1.50 each; town visits (night), $3.00 each. Country visits are double also at night. Ordinary cases of obstetrics

(normal) and not delayed but three or four hours, $11.50 day, $13.00 night, and attend them nine days thereafter; thereafter $1.50 each day. If we use forceps we charge $25.00 and attend them nine days at $1.50 each day. In regard to surgery, we have no fixed charges. Office work we charge $1.00 for prescription. Gonorrhea, $10.00 first prescription, and $1.00 afterwards. Syphilis, $25.00 first prescription. Gynecological visits at office, $5.00 each visit, unless there is not much to be done after first treatment. Curettment, $10.00. Anesthesia, $5.00.

I take pleasure in being of this much assistance. With best wishes, I am,

Very truly yours, WM. E. WARREN,
Secretary Martin County Medical Society.

CHARLOTTE.

Section 1. The following shall be the minimum charges for members of this Society:

Office consultation, $1.00.

Visit (day), $2.00; visit (night), $4.00.

Visit (ordinary in country), $2.00 (50 cents extra after three miles from square).

Visit (ordinary in country, night), double fee.

Testing urine (chemical), $2.50.

Testing urine (microscopical), $5.00.

Vaccination, $1.00.

Administering chloroform or ether for dentist or other physician, $5.

Consulting with physician, $10.00.

Visit in case of poisoning, double fee.

OBSTETRICS.

Labor (ordinary) separate discount, 33 1-3 per cent, $15.00.

Abortion, $10.00.

Forceps in labor (additional), $5.00.

GYNECOLOGY.

Laparotomy, $50.00.

Hysterectomy, $100.00.

Removal of the polypi, $20.00.

Curetting, $10.00.

Vesico-vaginal fistula, operation for, $50.00.

Examination, digital, in office, $2.00.

Examination by speculum, $3.00.

Regular office treatment, $2.00.

AMPUTATIONS.

Fingers or toes, each, $5.00.

Wrist, forearm or arm, $25.00.

Shoulder joint, $50.00.

Foot, ankle or leg, $25.00.

Thigh, $50.00.
Penis, $25.00.
Castration (one side), $25.00.
Operation for phimosis or paraphimosis, $5.00.
Circumcision, $10.00.
Hydrocele, $10.00.
Hemorrhoids by injection, $10.00.
Operation for lithotomy, $75.00.
Operation for stricture, $15.00.

RESECTIONS.

Ribs in empyema, $10.00.
Bones of arm, leg or any joint, $10.00.

FRACTURES.

Nose, $10.00.
Clavicle, $15.00.
Scapula, $15.00.
Ulna, $15.00.
Small bones, $10.00.
Ribs, $10.00.
Femur, $25.00.
Humerus, $15.00.
Tibia or fibula, $15.00.
Both bones of the leg, $20.00.
Compound comminuted, additional, $5.00.

DISLOCATIONS.

Shoulder, $15.00.
Arm, $15.00.
Finger or toe, $2.50.
Hip, $20.00.
Knee or ankle, $15.00.

MONTGOMERY COUNTY.

OFFICE OF SECRETARY,
TROY, N. C., October 9, 1909.

D. A. Stanton, M.D., High Point, N. C.

DEAR DOCTOR:—In answer to yours of the 4th inst., I will say that our County Medical Society is only existing by name, for we have not met since last October, and all my efforts have been in vain to have a meeting. Nevertheless, I will send you the fee bill that was adopted by our Society in September, 1907.

Calls in town (day), $1.00.
Calls in town (night), $1.50.
Calls out of town, 50 cents per mile, plus $1.00 for call.
Calls out of town (night), $1.00 per mile plus $1.00 for call.
Prescription without physical examination, 50 cents.

Prescription with physical examination, $1.00.

Obstetrics, within six miles, $10.00; after six miles, mileage extra.

Abortion, complete, $10.00; deliverance of placenta, $5.00; plus mileage.

Lancing boil, $1.00.

Tooth extraction, 50 cents.

Hoping that will be satisfactory, I remain,

Yours very truly, C. DALIGNY, *Secretary.*

PITT COUNTY.

Office consultation, $1.00 to $5.00.

Advice to patient over telephone, 50 cents to $1.00.

Visit in town (day), $1.00. Medicine extra.

Visit in town (night), $2.00. Medicine extra.

Call visit in country (day), $1.00. Medicine extra.

Call visit in country (night), $2.00. Medicine extra.

No visit for less than $2.00.

Ordinary visit in country (day), $1.00; mileage 50 cents.

Ordinary visit in country (night, sunset to sunrise), $2.00; mileage $1.00.

Test urine, chemical, $2.00.

Microscopical examination of urine, $2.00.

Microscopical examination sputum, $5.00.

Vaccination, private, $1.00.

Vaccination, public, $.....

Administration ether or chloroform, $5.00.

Consultation with physician, $10.00 and mileage.

DISLOCATIONS.

Shoulder, elbow, wrist, knee or ankle, $15.00.

Hip, $35.00.

Trephining (operation), $25.00.

Finger or toes, $5.00.

Life insurance examinations for old-line companies, $5.00.

OBSTETRICAL.

Abortions, $10.00. Mileage beyond five miles.

Ordinary cases of labor in town, $20.00. Three days treatment.

Ordinary cases of labor in country, $15.00 and mileage.

Use of forceps, $5.00 extra.

GYNECOLOGICAL.

Vaginal examination, digital, in office, $2.00.

Vaginal examination, speculum, in office, $2.50.

Regular treatment, $2.00.

Laparotomy, $50.00.

Curetting uterus, $10.00.

Perineal laceration operations, $20.00.

AMPUTATIONS.

Fingers or toes, $10.00.
Wrist, arm or forearm, $25.00.
Excision shoulder joint, $35.00.
Foot, ankle or leg, $35.00.
Thigh, $50.00.
Penis or castration, $25.00.
Amputation of breast, $50.00.
Phimosis or paraphimosis, $5.00.
Phimosis or circumcision, $10.00.
Phimosis or hydrocele, $10.00.
Phimosis or hemorrhoids, $15.00.
Phimosis or stricture (urethrotomy), $10.00 to $15.00.
Phimosis or stone in the bladder (lithotomy), $50.00.
Fistula or ano, $25.00.
Rectal ulcer or fissure, $25.00.

RESECTIONS.

Rib, in empyema, $15.00.
Bones of arm or leg, any joint, $50.00.

FRACTURES.

Nose or rib, $10.00.
Clavicle, humerus or ulna, $15.00.
Femur, $25.00.
Scapula or fibula, $15.00.
Both bones of leg, $20.00.
All compound or comminuted fractures (additional), $5.00.

ROWAN COUNTY.

For one day visit in town or until 9 o'clock p. m., $1.50 to $2.00.

For each succeeding day visit, $1.00 to $2.00.

For one day visit in country three miles or under from physician's home: town physician, $2.00; country physician, $1.50.

For day visit in country over three miles, 50 cents per mile up to nine miles; over nine miles, optional increase of rates.

For night visits, double day rates.

For detention with patient, except in obstetrical cases, per hour, $1.00.

For all night, $5.00 to $10.00.

For all day and night, $10.00 to $25.00.

For call visit on road, $1.00 to $1.50. Every mile or fraction thereof add 50 cents.

For second visit to be charged for from office.

In case of several patients at the same house, charge visit for one and for each of the others, 50 cents.

For ordinary consultation, $5.00.

For prescriptions, not less than $1.00.

For written opinion in question of law, $2.00 to $10.00.

For examination for life insurance, $2.00 to $5.00.

For post-mortem examination in case of legal investigation, $10.00 to $20.00.

For post-mortem examination made at the request of family or friends, $5.00 to $20.00.

Attendance on case of labor in town, $15.00 to $25.00.

For attendance on cases of labor in country, $10.00 to $20.00, and regular rates for each visit thereafter.

For attendance on complicated, protracted or instrumental labor and in case of twins, triplets, etc., $15.00 to $100.00.

For attendance on cases of abortion, $10.00 to $25.00.

For delivery of retained placenta, $5.00 to $20.00.

For pumping stomach, $5.00 to $10.00.

For opening abscess or exploring tumors, not less than $1.00.

For vaccination of single person, $1.00.

For vaccination of each one thereafter in same family, 50 cents.

For extracting teeth, each, 50 cents.

For lancing gums, $1.00.

For plugging posterior nares, $5.00 to $10.00.

For application of truss, $1.00 to $5.00.

For reduction of prolapsus ani, $5.00 to $20.00.

For examination per vaginum or anum, $2.00 to $5.00.

For introduction of pessary, $2.00 to $5.00.

For introduction of bougie to explore urethra, $1.00.

For introduction of catheter, first time, $1.00.

For office consultation, $1.00 to $5.00.

For treating stricture of urethra, $5.00 to $20.00.

For treating stricture by operation, $20.00 to $50.00.

For sounding bladder, $5.00 to $30.00.

For treating syphilis or gonorrhea, for first prescription not less than $5.00 cash.

For subsequent treatment of syphilis or gonorrhea, $10.00 to $100.00.

For operation phimosis or paraphimosis, $5.00 to $20.00.

For palliative operation for hydrocele, $5.00.

For radical cure for hydrocele, $10.00 to $50.00.

For operation for fistula in ano or perineo, $20.00 to $100.00.

For operation for hemorrhoids, $10.00 to $50.00.

For operation for imperforate anus or vagina, $10.00 to $50.00.

For reduction of hernia by taxis, $5.00 to $20.00.

For operation for strangulated hernia, $25.00 to $200.00.

For operation for recto or vesicovaginal fistula, $50.00 to $200.00.

For operation for stone in bladder, $50.00 to $200.00.

For extracting calculus from urethra, $10.00 to $50.00.

For puncture of bladder, $10.00 to $50.00.

For paracentesis abdominis, $5.00 to $20.00.

For paracentesis thoracis, $10.00 to $50.00.

For Cæsarean section, $100.00 to $200.00.

For extirpation of uvula, $5.00.

For extirpation of tonsils, $5.00 to $25.00.

For extirpation of mamma, $20.00 to $100.00.

For extirpation of testicle, $20.00 to $100.00.

For extirpation of tumors, $5.00 to $100.00.

For extirpation of polypus uteri, $10.00 to $100.00.

For extirpation of polypus nasi, $10.00 to $100.00.

For extirpation of eye, $50.00.

For operation for cataract, $25.00 to $100.00.

For other operations on eye, $1.00 to $100.00.

For amputation of superior or inferior extremities, including dressing, $20.00 to $100.00.

For amputation of finger or toe, $5.00 to $20.00.

For evulsion of nail on finger or toe, $5.00 to $20.00.

For application of trephine to cranium, $50.00 to $100.00.

For exsection of diseased bone, $5.00 to $100.00.

For removal of upper or lower jaw or portions of the same, $10.00 to $200.00.

For exsection of diseased joints, $10.00 to $100.00.

For reduction of luxation of the great joints, $10.00 to $100.00.

For reduction of luxation of the small joints, $5.00 to $25.00.

For setting fractures of large bones, $10.00 to $50.00.

For setting fractures of small bones, $5.00 to $20.00.

For treating fractures of cranium with or without trephining, $10.00 to $100.00.

For operation for harelip, $20.00 to $100.00.

For operation for club foot, $20.00 to $100.00.

For operation for myotomy or tenotomy, $10.00 to $100.00.

For plastic operations—discretion of surgeon.

For extracting foreign bodies from pharynx or œsophagus, $5.00 to $50.00.

For laryngotomy or tracheotomy, $20.00 to $50.00.

For operation for appendicitis, $50.00 to $200.00.

In all cases mileage at regular rates shall be charged from office in addition to the above fees, and for medicine furnished.

RULES ON PRESENTING DOCTORS' BILLS.

All bills due when the services are rendered.

Office consultation always cash if not impracticable.

All bills may be presented monthly or quarterly, and should be settled once a year from the date of first service.

RUTHERFORD COUNTY.

Abscess, opening or incision, $25 cents to $2.00.

Abortions (mileage and after-treatment extra), $5.00 to $25.00.

Amputations:

Finger, thumb or toe, $2.50 to $5.00.

Hand or forearm, $10.00 to $50.00.

Foot, leg or knee, $25.00 to $50.00.

At shoulder joint or hip joint, $30.00 to $100.00.

Of breast or the tongue, $30.00 to $100.00.

Penis, $10.00 to $25.00.

Mileage, if any, extra in all of the above.

Appendectomy, $50.00 to $100.00. Subsequent treatment extra at usual rate.

Anesthetic, administration of, $5.00 to $10.00.

Aneurisms, $25.00 to $100.00.

Circumcision (after treatment extra), $5.00 to $25.00.

Consultation, office, according to nature of, $1.00 to $5.00.

Consultation, in visit, mileage extra, $2.50 to $5.00.

Chancroid, first fee for treatment, $2.50 to $10.00.

Curettement of bubo abscess, $2.50 to $10.00.

Curettement of uterus, $5.00 to $10.00.

Curetting of diseased bone, mileage if any, $10.00.

Chiseling of diseased bone, mileage if any extra, $5.00 to $25.00.

Dislocations, reduction of:

Fingers or toes, $1.00 to $5.00.

Wrist, elbow, shoulder, ankle, knee, $5.00 to $25.00.

Hip, no fracture, $15.00 to $25.00.

Inferior maxilla, $2.50 to $10.00.

(If dislocation be old, with adhesions, fee for reduction will be double usual one.)

Eye, operations on, according to nature and extent of, $1.00 to $50.00.

Enucleation of eye, $25.00 to $50.00.

Examinations:

Complete physical, $1.00 to $5.00.

Urinalysis, $2.00 to $10.00.

Stomach contents or sputum, $2.00 to $25.00.

Vaginal or rectal, $1.00 to $5.00.

Post-mortem, $10.00 to $100.00.

Nasal, or ear, or eye, or urethral, $1.00 to $5.00.

Fistula, operations for, according to location, etc., $10.00 to $50.00.

Foreign bodies removed from eye, ear, nose, throat, $1.00 to $5.00.

Fractures, setting or reduction of:

Clavicle, scapula, humerus or forearm, $5.00 to $50.00.

Femur, tibia and fibula or inferior maxilla, $5.00 to $50.00.

Metatarsal, metacarpal, or phalanges, $2.50 to $5.00.

Ribbs or sternum, $5.00 to $25.00.

Skull, if trephining is not necessary, $10.00 to $25.00.

Subsequent care and treatment of fractures extra, according to nature and time required. Where the fracture is compound or comminuted, fee is double.

Gonorrhea, first fee in advance, $2.00 to $10.00.
Gonorrhea, subsequent calls or treatment, $1.00 to $5.00.
Hemorrhoids, operation for, $5.00 to $25.00.
Hernia, strangulated, operation for, $25.00 to $100.00.
Hernia, not strangulated, reduction of, $5.00 to $25.00.
Hydrocele, operations for radical cure, $25.00 to $50.00.
Hydrocele, tapping or aspirating, $1.00 to $5.00.
Intubation in diphtheria or true croup, $5.00 to $10.00.
Lacerations of perineum, repair of, $5.00 to $25.00.
Lacerations of cervix uteri, repair of, $15.00 to $50.00.
Laparotomies, $50.00 to $100.00.
Lithotomy, $50.00 to $100.00.
Day visit in town, $1.00.
Night visit in town, $2.00.
Day visit in country after first mile, 50 cents.
Night visit in country after first mile, 75 cents.
Obstetrical work:
- Normal labor (not exceeding four hours), mileage extra after first three miles, $7.50 to $10.00.
- Bisections, craniotomy, eviscerations, ex., $5.00 to $50.00.
- Forceps delivery, extra, $5.00 to $10.00.
- Version, or turning, extra, $5.00 to $25.00.
- Cæsarean section, $50.00 to $100.00.
- Removing adherent placenta, extra, $2.50 to $20.00.
- Post-partum hemorrhage, when recalled or in consultation, $5.00 to $25.00.

Prescription and advice, local, 25 cents to $2.00.
Syphilis, first fee for treatment in advance, $5.00 to $25.00.
Syphilis, subsequent consultations or treatments, $1.00 to $5.00.
Stricture, urethral, operation for, $5.00 to $25.00.
Stricture, rectal or œsophageal, treatment for, $5.00.
Tonsilotomy, single tonsil, $3.00 to $10.00.
Tonsilotomy, double, $5.00 to $20.00.
Tracheotomy, $10.00 to $50.00.
Trephining the skull, $25.00 to $100.00.
Truss, fitting of, $1.00 to $2.00.
Teeth extraction (single), $25 cents to $1.00.
Tongue tie, operation for, $1.00 to $5.00.
Uvulotomy, $2.00 to $5.00.
Varicocele, radical operation for cure of, $15.00 to $50.00.
Venesection, or bleeding, $2.00 to $5.00.
Vaccinations, single and furnish point, 50 cents to $1.00.
Vaccinations, families, and furnish points, 35 cents to $1.00.

LIST PRACTICAL.

The heads of family, each per month, 50 cents.
Each additional member of family, per month, 10 cents.

Boarders in family, each per month, 50 cents.

Midwifery extra at regular fee-bill rates.

Gynecology, diseases peculiar to women, extra at usual fee-bill rates.

Extraction of teeth and surgical operations extra at usual fee-bill rates.

Where there is continued sickness requiring treatment, medicines are extra, or to be furnished on prescription. All tonic treatment extra.

Night visits from 9 p. m. to 6 a. m., extra for each, $1.00.

Vaccinations extra at regular fee-bill rates.

Prescriptions are to be used as in regular practice.

Fees for list work are due at end of each month and are to be collected through the company's office at the option of the physician doing the practice. No reduction can be made from these fees, and they must be paid promptly and in full each month.

SAMPSON COUNTY.

Regulation minimum fees, as amended and adopted by the Sampson County Medical Society at its regular quarterly meeting, Wednesday, January 8, 1908.

All physicians are urged not only to regulate their fees in accordance with this scale, but to post a copy in a conspicuous place in their offices, that patrons may be the better informed.

Examinations, simple, 50 cents.

Examinations, gynecological or rectal, $2.00.

Urinalysis, $1.00.

Extracting teeth, 50 cents.

Visits, town (day), $1.00.

Visits, town (night after 10 p. m.), $2.00.

Visits, country (day), per mile, 50 cents.

Visits, country (night, after 10 p. m.), per mile, $1.00.

Visits, call, $1.00.

Consultation, $2.50.

Gonorrhœa treatment, always cash in advance, $5.00.

Abscess, lancing, without anesthetic, 50 cents.

Abscess, lancing, with anesthetic, $1.00.

Operations, minor, exclusive of mileage, $2.00.

Fractures of arm, exclusive of mileage, $5.00.

Fractures of leg, exclusive of mileage, $10.00.

Fractures, minor, exclusive of mileage, $2.00.

Dislocations, minor, exclusive of mileage, $2.00.

Dislocations, wrist, exclusive of mileage, $5.00.

Dislocations, elbow, exclusive of mileage, $5.00.

Dislocations, shoulder, exclusive of mileage, $5.00.

Dislocations, knee, exclusive of mileage, $5.00.

Dislocations, hip, exclusive of mileage, $10.00.

Amputation, arm, exclusive of mileage, $15.00.

Amputation, leg, exclusive of mileage, $25.00.
Obstetric cases, simple, exclusive of mileage, at day rate, $10.00.
Obstetric cases, instrumental, exclusive of mileage, at day rate, $15.00.
Delivery, retained placenta, exclusive of mileage, $5.00.
Vaccination, single, 50 cents.
Vaccination, three cases in same family, $1.00.
Revaccination, 25 cents.
Antitoxin administration (exclusive of mileage), according to dosage, $2.50 to $10.00.

G. M. Cooper, M.D., *Secretary.*

SURRY COUNTY.

Resolved, That the following rates for professional services be adopted by the Surry County Medical Society, and that same be subscribed to by each member of the Society.

The Society unanimously requires that the bills for professional services be presented every ninety days. Failure to settle bill or arrange satisfactory to physician within sixty days is sufficient cause to place the name on delinquent list.

OFFICE AND GENERAL PRACTICE.

For written prescription, 50 cents.
For written certificate, $1.00.
For examination, with or without medicine, $1.00 to $2.00.
For town visit, $1.00.
In case of frequent visits a day, discretionary.
Night visits, after 11 p. m. to 6 a. m., extra, 50 cents.
Visit within one mile of corporation, $1.50.
Per additional mile, 50 cents.
Services rendered greater part of day or night, $5.00.
Examination for life insurance, $3.00 to $5.00.
Gonorrhea, $5.00. And after fifteen days, medicine extra.
Syphilis and stricture, $10.00 to $20.00.
Consultation fee, double usual fee.
Several patients seen at the same house, charge for visit and mileage, rest discretionary.
Vaccination, $1.00.
Obstetrics, natural labor, 6 hours, within 3 miles of town (regular mileage thereafter), $5.00, and 50 cents every hour for all time thereafter.
Abortion, fee same as natural labor, $5.00.
Applying forceps, extra, $5.00.
Delivering placenta and mileage, $5.00. Twins, $10.00.

SURGICAL PRACTICE.

Reducing fractures and luxation:
Larger bones, $10.00 to $20.00.
Smaller bones, $5.00 to $10.00.

Additional visits regular price.

Redressing same at office, $1.00.

Resection of larger bones, $5.00 to $20.00.

Amputation of leg or forearm, $10.00 to $25.00.

Amputation of thigh or hip, ...; amputation of shoulder or arm, $25.00 to $75.00.

Amputation of finger, thumb or toe, each, $3.00 to $5.00.

Treating fracture of cranium, with or without trephining, $25.00 to $50.00.

Removal of stone from bladder, $25.00 to $50.00.

Parancentesis: vesicæ, abdominis, or thoracis, $5.00 to $20.00.

Tapping for hydrocele, $1.00.

Operation for hemorrhoids, $5.00 to $25.00.

Operation for fistula in ano or in perineo, $10.00 to $20.00.

Operation for phimosis or paraphimosis, $2.50 to $10.00.

Operation for extirpation, $10.00 to $25.00.

Operation for excision of uvula, $1.00.

Operation for tonsils, $3.00 to $5.00.

Operation for harelip, $10.00 to $25.00.

Operation for extraction of foreign bodies from eye, ear or nose, 50 cents to $50.00.

Extraction of bullets, $2.50 to $20.00.

For opening abscess, 50 cents to $10.00.

For reduction of hernia by taxis, $5.00 to $10.00.

For operation strangulated hernia, $20.00 to $50.00.

For extirpation of tumors, $2.00 to $25.00.

For dressing recent wounds, $1.00 to $5.00.

GYNECOLOGICAL PRACTICE.

Vaginal examination, $1.00 to $5.00.

Lacerated perineum, $5.00 to $50.00.

Extirpation of polypus uteri, $5.00 to $50.00.

Amputation of mamma, $25.00.

Ovariotomy, $50.00 to $200.00.

Lacerated cervix, $20.00 to $50.00.

For operations and services not enumerated above, charges will be made at the discretion of the physician.

The above fee bill, founded on a just consideration of the important services which physicians are called upon to perform, is designed to enable the practitioners of Surry County to exhibit uniformity in their rates of charging, and it is expected that every member of the profession will, in good faith, conform to it, whenever the pecuniary circumstances of the patient are such as do not clearly forbid it.

In case any one shall transgress these rules, he shall be (1) requested to come before the entire Medical Society, or a committee appointed by the Chair to investigate. Then open for discussion. (2) The principles of medical ethics adopted by the American Medical Association shall be

complied with to a letter. If not, the violator shall make his appearance before the Society and be fined $20.00. If not explained to the satisfaction of the Society, he shall pay or be expelled, and no consultation shall be had with him. If any one shall knowingly consult with such physician, he shall be regarded and treated in similar manner.

Dr. J. B. Smith, *President.*
Dr. E. W. Allred, *Vice-President.*
Dr. W. S. Taylor.
Dr. E. M. Hollingsworth, *Sec. and Treas.*
Dr. J. W. Ring.
Dr. J. M. Reece.
Dr. R. E. L. Flippin.
Dr. S. T. Flippin.
Dr. J. M. Hollingsworth.
Dr. R. E. Hollingsworth.
Dr. T. B. Ashby.
Dr. John R. Woltz.
Dr. John L. Woltz.
Dr. W. C. Mebane.
Dr. C. S. Lawrence.
Dr. W. M. Stone.
Dr. E. W. Currie.
Dr. J. B. Hollingsworth.

SCOTLAND COUNTY.

Laurinburg, N. C., Sept. 23, 1909.

Dr. D. A. Stanton, High Point, N. C.

Dear Doctor:—We have just had a meeting of the Scotland County Medical Association. We have no printed fee bill, but have adopted the old fee bill, of which there is no record. It is as follows:

Visits in town, $2.00.
Visits at night in town, $3.00.
Visits in country to five miles, $2.50.
For every additional mile after five, 50 cents.
Obstetrical cases, $10.00 and up.
No surgical fee bill, as there is a hospital here.
Trusting this is satisfactory, I am,
Very truly,

A. W. Hamer.

VANCE COUNTY.

MEDICAL FEES.

Town.

Town visits, day, one visit, $1.50.
Subsequent visits, same day, $1.00.
Night visits, from 10 p. m. to 6 a. m., $2.50.

Office visits, $1.00.

Consultations, ordinary, $5.00.

Consultations in labor cases, $10.00.

Country.

Country visits, within radius of two miles from court-house, each, $2.00.

Over two to four miles, $2.50.

Over four miles to ten, per mile, 50 cents.

Over ten, charges discretionary.

Obstetrics.

Labor and one visit, $15.00.

Forceps delivery, $25.00.

Labor and repair of complete laceration, $25.00.

Abortion, $10.00.

Delivery of placenta only, $5.00 to $10.00.

Call after labor is over, $1.50 to $5.00.

Dilatation and curettage, $25.00.

Genito-Urinary.

Syphilis, $25.00.

Chancroids, $10.00.

Gonorrhea, $10.00 to $50.00.

SURGICAL FEES.

Minor Surgery.

First dressing—first stitch, $1.00; each succeeding stitch, 50 cents. Contusions, burns and scalds, $1.00 to $5.00.

Dislocations.

Reduction dislocation of bones of hand or foot and permanent dressing, $5.00.

Reduction dislocation of wrist or jaw, $5.00.

Reduction dislocation of shoulder, elbow, knee or ankle, and permanent dressing, $10.00.

Fractures.

Reduction of the fractures of bones of the hand or feet, and permanent dressing, $5.00.

Fracture of ribs, $5.00.

Reductions and permanent dressings of all other fractures, $10.00 to $25.00.

Amputations.

Finger, $5.00.

Hand, $15.00.

Arm, forearm, and foot, $20.00.

Shoulder, $30.00.

Above ankle to knee, $25.00.

Above knee, $30.00.

Hip joint, $50.00.

Miscellaneous.

Excisions, large joints, $25.00.
Trephining, $20.00.
Circumcision, $10.00.
Tonsils amputated, each, $5.00.
Enlarging meatus urinarius, $5.00.
Cutting stricture, $10.00.
Local applications to uterus, $1.50 to $5.00.
Treating gonorrhea in female, per visit, mileage and $2.00.
Treating hemorrhoids, $5.00 to $50.00.

WILKES COUNTY.

Consultations:
Ordinary, 50 cents to $1.00.
Critical examination and prescription, $1.00 to $5.00.
Day visits:
For first two, $1.00 each.
For each additional visit after second on same day, 50 cents each.
Mileage, for each mile or fraction of mile, 50 cents.
Night visits:
From 10 p. m. to 7 a. m., double that of day.
Mileage, at night, $1.00 per mile.
Certificates of death, health, disability, etc., $1.00.
Opinion involving legal issues, $5.00 to $25.00.
Insurance examinations:
For old-line companies, $5.00.
Fraternal, $2.00.
Industrial, $2.50.
Vaccination:
Single, $1.00.
More than one, 50 cents each.
Unusual detention, $2.00 to $10.00.
Post-mortem examinations, $10.00 to $40.00.
Circumcision, $7.50 to $10.00.
Gonorrhœa, first prescription, $5.00.
Syphilis, first prescription, $10.00.
Removing foreign bodies from the eye, ear, nose and throat, $1.00 to $10.00.
Removing ingrowing toe nails, tonsils, polypus, hemorrhoids and small tumors, $5.00 to $25.00.
Reducing hernia, taxis, $5.00 to $10.00.
Reducing hernia by operation, $25.00 to $100.00.
Reducing dislocated finger or toe, $2.00 to $5.00.
Reducing dislocated shoulder, elbow, ankle, wrist, $10.00.
Reducing dislocated hip joint, knee joint, $20.00.

Fracture of bones, hand or foot, $3.00 to $5.00.

Fracture of bones, arm, forearm, wrist, collar bone, jaw, ribs, $7.50 to $10.00.

Fracture of bones, thigh, leg, $10.00 to $25.00.

Dressing wounds, 50 cents to $1.00.

Amputation, fingers and toes, $5.00 to $10.00.

Amputation, foot, leg, arm, forearm, hand, $20.00 to $30.00.

Amputation, hip joint, $40.00.

Amputation, breast, $25.00 to $50.00.

Labor:

Ordinary, $10.00 and mileage.

Instrumental, $15.00 to $25.00.

Delivery of placenta, $5.00.

Delivery twins, $12.50 to $15.00.

Visit too late for delivery, mileage only.

Ordinary abortion, $5.00 to $10.00.

Post-partum hemorrhage or puerperal convulsions, extra, $5.00 to $10.00.

Repairing rupture of perineum immediate, $5.00 to $25.00.

Repairing rupture of perineum secondary, $25.00.

Lacerated cervix, $25.00.

Craniotomy or evisceration, $5.00 to $20.00.

Ordinary vaginal examination, $2.00.

Tampon or uterine application, $2.00.

Curettement, $5.00 to $10.00.

Rectal examination, $3.00 to $10.00.

Giving anesthetic, $3.00 to $10.00.

Minor surgical operations without anesthetic, $3.00 to $10.00.

Fitting pessaries, truss or supporter, $2.00 to $5.00.

Passing sound or catheter, $2.00 to $5.00.

Assistant gets one-third regular fee.

Anesthetist gets regular fee for anesthesia.

Empyema operation, $10.00 to $25.00.

Visit to smallpox, $5.00 and mileage.

Visit to scarlet fever or diphtheria, $3.00.

Giving diphtheria antitoxin, $5.00 to $10.00.

Consultation fee, $2.50 to $5.00.

Intubation, $25.00 to $50.00.

Intutation, $25.00 to $50.00.

Tracheotomy, $25.00 to $50.00.

WILSON COUNTY.

1906.

The following fee bill has been adopted by the Wilson County Medical Society as a just and reasonable one, and will be followed by the undersigned members as far as consistent with the individual circumstances.

This is not a new fee bill, but is the old one made more uniform and published for the better understanding between the public and the profession.

TOWN PRACTICE.

For first visit in the day and prescription, $2.00.
For each subsequent visit in day, in same case, $1.00.
For requested visit, between 10 p. m. and 6 a. m., $2.00 to $5.00.
For prescription at home at night, $1.00.
For being detained all night, $10.00.
For consultation, $5.00.
For each subsequent visit (by consulting physician), $1.00.
For prescription at office (ordinary case), $1.00.
For old-line insurance examination, $5.00.
For health certificate, $1.00 to $2.00.
For certificate of examination of lunatic, $5.00.
For vaccination, $1.00.
For administering chloroform, except in labor, $1.00 to $10.00.

COUNTRY PRACTICE.

For riding out of town, first mile, $2.00.
For each succeeding mile, going, 50 cents.
For night visit in country, double mileage.

SURGERY.

For venesection, $2.00 to $5.00.
For dry cupping, $1.00.
For introducing catheter, $2.00.
For dressing wounds, $1.00 to $5.00.
For opening abscesses, $1.00 to $5.00.
For gonorrhea, in advance, $10.00 to $30.00.
For syphilis, $50.00.
For prescription for syphilis, $5.00.
For treating stricture, each treatment, $2.00.
For use of speculum in ani, $2.00 to $5.00.
For lancing gums, $1.00.
For fitting truss, $1.00 to $5.00.
For reducing prolapsus ani, $2.00 to $10.00.
For operation for hydrocele, $10.00 to $30.00.
For excising incarnated toe nail, $5.00 to $10.00.
For phimosis and paraphimosis, $5.00 to $10.00.
For lithotomy, $50.00 to $100.00.
For important operations on the eye, $25.00 to $100.00.
For minor operations, $5.00 to $20.00.
For amputation of breast, $50.00 to $500.00.
For amputation of finger or toe, $5.00 to $10.00.
For amputation of forearm, arm, leg, or thigh, $25.00 to $100.00.
For amputation at shoulder joint, $100.00.
For amputation at hip joint, $150.00 to $250.00.

For reducing hernia by taxis, $10.00 to $25.00.
For operation for hernia, $25.00 to $100.00.
For operation for bronchotomy, esophagotomy, or tracheotomy, $30.00 to $100.00.
For tying wounded arteries, $5.00 to $100.00.
For setting fractures of thigh or leg, $50.00 to $100.00.
For setting fractures of the arm or forearm, $10.00 to $50.00.
For setting fractures of lower jaw, $25.00 to $50.00.
For setting fractures of clavicle, $15.00 to $25.00.
For reducing dislocation of hip, $25.00 to $75.00.
For reducing dislocation of the knee or ankle, $25.00 to $50.00.
For reducing of shoulder, elbow or wrist, $10.00 to $30.00.
For reducing dislocations of smaller joints, $5.00 to $10.00.
For trephining, $100.00 to $500.00.
For extirpating cancerous lip, $20.00 to $40.00.
For paracentesis or aspiration, $10.00 to $75.00.
For operation for harelip, $25.00 to $50.00.
For extirpating tonsils, $5.00 to $25.00.
For operation on fistula in ano, $25.00 to $50.00.
For extracting foreign substance from body, $5.00 to $50.00.

OBSTETRICS.

For labor uncomplicated, $15.00.
For application of forceps, $10.00.
For version, $10.00.
For delivery of placenta, uncomplicated, $5.00.
For delivery of placenta, complicated, $10.00.
For attendance on case of abortion, $15.00.
For operation of abortion, $25.00 to $100.00.
For labor with post-partum hemorrhage, $25.00 to $50.00.
For labor with placenta prævia, $25.00 to $100.00.
For immediate repair of perineal laceration, $10.00.
For each hour (over five hours) detained, in simple labor, $1.00.
For labor within five miles of office, same as in town, $15.00.

GYNECOLOGY.

For vaginal examination at office, $2.50.
For vaginal examination at house, $3.00.
For uterine or vaginal application, $2.50.
For introduction of pessary, $2.50.
For reducing inverted uterus, $25.00 to $50.00.
For operation on cervix, $50.00.
For operation of lacerated perineum, $25.00 to $100.00.
For operation for vesico-vaginal fistula, $100.00.
For Cæsarean section, $100.00.
For operation for ovarian tumors, $100.00 to $500.00.
For removal of uterine polypus, $25.00.

For removal of fibroid tumor without abdominal section, $50.00.
For removal of fibroid tumor by abdominal section, $100.00.
For removal of venereal papliommita, $25.00.
For opening vaginal abscess, $5.00.
For each subsequent dressing, $2.00.

W. S. Anderson, M.D.
C. E. Moore, M.D.
H. F. Freeman, M.D.
Nathan Anderson, M.D.
E. G. Moore, M.D.
W. D. Crocker, M.D.
Albert Anderson, M.D.
C. H. Brantley, M.D.
S. H. Crocker, M.D.
I. W. Lamm, M.D.
E. T. Dickinson, M.D.
B. S. Herring, M.D.
A. F. Williams, M.D.
B. F. Barnes, M.D.
W. H. Anderson, M.D.

YADKIN COUNTY.

Resolved, That the following minimum rates for professional services be adopted by the Yadkin County Medical Society, and that same be subscribed to by each member of the Society.

The Society unanimously recommends that the bills for professional services be presented within thirty days after dismissal of patient. Failure to settle bill or arrange satisfactory to physician within sixty days is sufficient cause to place the name on delinquent list.

OFFICE AND GENERAL PRACTICE.

For written prescription, 50 cents; for written certificate, 50 cents; for prescription and medicine, 50 cents and up.

For town visit, $1.00. In case of frequent visits a day, discretionary.

Visit within three miles of office, $1.50.

Per additional mile, 25 cents. Calls at night one and a half fare.

Services rendered greater part of day or night, $5.00.

Examination for life insurance, $3.00 to $5.00.

Specific diseases to be paid in advance (gonorrhea, syphilis, stricture), $5.00 to $50.00.

Consultation fee, $5.00, and mileage after five miles.

Several patients seen at same house, charge for visit and mileage, rest discretionary.

Vaccination, 50 cents.

Obstetrics, natural labor, twelve hours, within five miles of town (regular mileage thereafter), $5.00, and 25 cents every hour for all time thereafter.

Abortion, fee same as natural labor, $5.00.

Applying forceps, extra, $5.00.

Delivering placenta, $2.50, and mileage after three miles.

Twins, $10.00.

SURGICAL PRACTICE.

Reducing fracture and first dressing, $2.50 to $10.00.

Resection of larger and smaller bones, $5.00 to $20.00.

Amputation of leg or forearm, $10.00 to $25.00.

Amputation of thigh or hip, ...

Amputation of shoulder or arm, $25.00 to $75.00.

Amputation of finger, thumb or toe, $3.00 to $5.00.

Treating fracture of cranium, with or without trephining, $25.00 to $50.00.

Removal of stone from bladder, $25.00 to $50.00.

Paracentesis vesicæ, abdominis, thoracis, $5.00 to $20.00.

Operation for hemorrhoids, $5.00 to $25.00.

Operation for fistula in ano or in perineo, $10.00 to $20.00.

Operation for phimosis or paraphimosis, $2.50 to $10.00.

Operation for extirpation, $10.00 to $25.00.

Operation for excision of uvula or tonsils, $1.00 to $5.00.

Operation for harelip, $10.00 to $25.00.

Operation for extraction of foreign bodies from eye, ear, or nose, 50 cents to $5.00.

Extraction of bullets, $2.50 to $20.00.

For opening abscess, 50 cents to $10.00.

For reduction of hernia by taxis, $5.00 to $10.00.

For operation strangulated hernia, $20.00 to $50.00.

For extirpation of tumors, $2.00 to $25.00.

For dressing recent wounds, $1.00 to $5.00.

GYNECOLOGICAL PRACTICE.

Vaginal examination, $1.00 to $5.00.

Lacerated perineum, $5.00 to $50.00.

Extirpation of polypus uteri, $2.00 to $10.00.

Amputation of mamma, $25.00.

Ovariotomy, $50.00 to $200.00.

Lacerated cervix, $20.00 to $50.00.

For operations and services not enumerated above, charges will be made at the discretion of the physician.

The above fee bill, founded on a just consideration of the important services which physicians are called upon to perform, is designed to enable the practitioners of Yadkin County to exhibit uniformity in their rates of charging, and it is expected that every member of the profession will, in good faith, conform to it.

In case any one shall transgress these rules, he shall be considered

without the pale of the profession, and no consultation shall be held with him. If any one shall knowingly consult with such physician, he shall be regarded and treated in similar manner.

T. L. Blackwell.
J. J. Clingman
B. W. Fassett.
T. R. Harding.
C. M. Holcomb.
E. M. Hutchens.
W. G. Leak.
J. F. Martin.
J. M. Matthews.
M. L. Matthews.
M. A. Royall.
S. L. Russell.
H. C. Salmons.
T. W. Shore.
J. L. Speas.

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